



# AFCTN Test Report 94-098

AFCTB-ID  
94-067



## Technical Publication Transfer Using:

O'Neil & Associates' Data  
Supporting:



ESC/MSL MILSTAR Program  
T O 12R2-2ARC208-113

(Contract #F19628-89-C-0131)



MIL-STD-1840A  
MIL-D-28000A (IGES)  
MIL-M-28001A (SGML)  
MIL-R-28002A (Raster)  
MIL-D-28003 (CGM)

Quick Short Test Report

03 June 1994



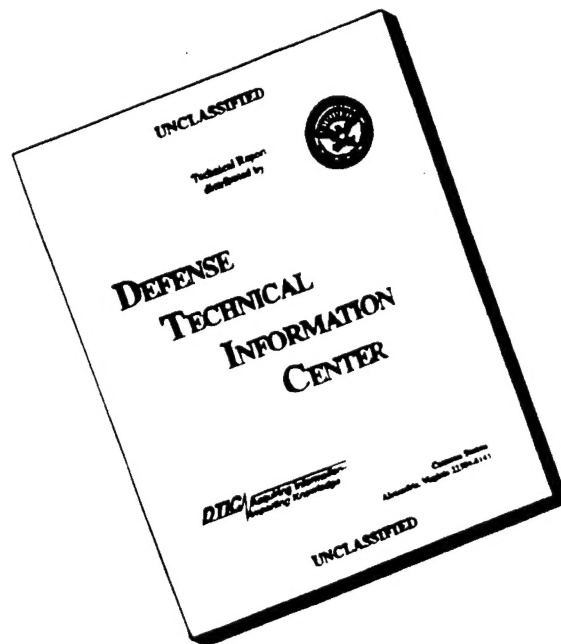
Prepared for  
Electronic Systems Center  
Air Force CALS Program Office  
HQ ESC/AV-2  
4027 Colonel Glenn Hwy Suite 300  
Dayton OH 45431-1672

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**Technical Publication TO 12R2-2ARC208-113 Transfer**

**Using:**

**O'Neil & Associates' Data:**

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**MIL-STD-1840A**

**MIL-D-28000A (IGES)**

**MIL-M-28001B (SGML)**

**MIL-R-28002A (Raster)**

**MIL-D-28003 (CGM)**

**Quick Short Test Report**

**03 June 1994**

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# **Air Force CALS Test Bed**

## ***Notification of Test Results***

**03 June 1994**

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test (QST) evaluation of data submitted by:

**O'Neil & Associates, Inc.**

Identified as follows:

Title:	<b>Technical Publication T O 12R2-2ARC208-113</b>
Program:	<b>ESC/MSL</b>
Program Office:	<b>MILSTAR</b>
Contract No.:	<b>F19628-89-C-0131</b>
QSTR No.:	<b>AFCTB-ID 94-067</b>

Received on the following media:     **9-Track Tape**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard	<b>Pass</b>
MIL-STD-1840A Media Format:	<b>Pass</b>
MIL-D-28000A IGES:	<b>Pass</b>
MIL-M-28001B SGML:	<b>Pass</b>
MIL-R-28002A Raster:	<b>Pass</b>
MIL-D-28003 CGM:	<b>Pass</b>

Formal results with associated disclaimer are documented and available from the AFCTB.

**Air Force CALS Test Bed  
HQ ESC/AV-2P  
4027 Colonel Glenn Highway, Suite 300  
Dayton, OH 45431-1672  
Phone: 513-257-3085     FAX: 513-257-5881**

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## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

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## 1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze O'Neil & Associates' interpretation and use of the CALS standards in transferring technical publication data. O'Neil used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

## 2. Test Parameters

Test Plan: AFCTB 94-067

Date of  
Evaluation: 03 June 1997

Evaluator: George Elwood  
Air Force CALS Test Bed  
DET 2 HQ ESC/AV-2P  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

Data  
Originator: Larry C. McKinley  
O'Neil & Associates, Inc.  
425 North Findlay Street  
Dayton OH 45404-2203  
(513) 461-1852

Data  
Description: Technical Manual Test

- 1 Document Declaration file
- 4 Document Type Definitions (DTDs)
- 8 Initial Graphics Exchange Specification (IGES) files
- 1 Text/Standard Generalized Markup Language (SGML) file
- 8 Raster files
- 2 Computer Graphics Metafile (CGM) files

Data  
Source System:

1840

**HARDWARE**

386 PC

**SOFTWARE**

AFCTN Tapetool v1.2.10

IGES

**HARDWARE**

Xerox 7650 Pro Imager  
Xerox 6085 Workstation

---

**SOFTWARE**

Xerox Expert Drafting v5.0  
Conversion of IGES files v5.1  
Xerox XTI v2.2  
Xerox XPI Image Conversion v2.6

**Text/SGML**

**HARDWARE**

386 PC

**SOFTWARE**

WordPerfect Intellitag v1.2  
Exoterica Validator v1.1

**Raster**

**HARDWARE**

HP Apollo 425T

**SOFTWARE**

Auto-trol CCITT Gp4 Converter

**CGM**

**HARDWARE**

HP/Apollo 425T

**SOFTWARE**

Auto-trol S5000/CGM Converter 1.4

**Evaluation Tools Used:**

**MIL-STD-1840A (TAPE)**

SUN 3/280

AFCTN Tapetool v1.2.10 UNIX  
XSoft CAPS/CALS v40.4

**MIL-D-28000 (IGES)**

HP 735

Carberry CADLeaf Plus v3.1.2  
InterCAP X-Change v7.82  
Island Software IslandDraw v3.0

SGI Indigo2

Cadkey Cadkey v6.0  
IGES Data Analysis (IDA) CALSView  
International TechneGroup Incorporated  
(ITI) IGES/Works v2.0.0

Sun SparcStation 2

Carberry CADLeaf Plus v3.1  
IDA Parser/Verifier v92  
IDA IGESView v3.05  
ITI IGES/Works v1.3  
Rosetta Technologies Prepare  
Rosetta Technologies Preview v3.2

PC 486/50

AUTODESK AutoCAD R12/IGES v5.1  
AUTODESK iges2ckm v6.0

MIL-M-28001 (SGML)

PC 486/50

Exoterica XGMLNormalizer v1.2e3.2  
Exoterica Validator v2.0 ex1  
McAfee & McAdam Sema Mark-it v2.3  
Public Domain sgmls

MIL-R-28002 (Raster)

HP 735

AFCTN xrastb.hp  
InterCAP X-Change v7.82

SGI Indigo2

IDA CALSView

SUN SparcStation 2

Carberry CADLeaf Plus v3.1  
AFCTN validg4  
AFCTN xrastb.sun4  
IDA IGESView v3.0

PC 486

IDA IGESView Windows  
Inset Systems HiJaak Pro  
Expert Graphics RxHighlight v1.0

MIL-D-28003 (CGM)

HP 735

InterCAP X-Change v7.82  
Island Software IslandDraw v3.0

SGI Indigo 2

IDA CALSView

SUN SparcStation 2

Carberry CADLeaf Plus v3.1  
Island Software IslandDraw v4.0

PC 486/50

Advanced Technology Center  
(ATC) *MetaCheck R 2.10*  
Software Publishing Corporation  
(SPC) *Harvard Graphics v3.05*  
Inset Systems *HiJaak Pro*  
Lotus *Freelance v2.01*  
Micrografx *Designer v4.0*  
Corel *Ventura Publisher*

**Standards  
Tested:**

MIL-STD-1840A  
MIL-D-28000A  
MIL-M-28001B  
MIL-R-28002A  
MIL-D-28003

### **3. 1840A Analysis**

#### **3.1 External Packaging**

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in a barrier bag as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

#### **3.2 Transmission Envelope**

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

The tape was run through the AFCTN *Tapetool* v1.2.10 utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors. However, this utility process resulted in the loss of three of the four DTDs. This occurred because the four DTDs had identical destination system document (dstdocid) record values and the *CAPS read1840A* utility renames the files using the dstdocid record values. (MIL-STD-1840A permits identical dstdocid values for multiple files; MIL-STD-1840B corrected this problem).

The physical structure of the tape meets the CALS MIL-STD-1840A requirements.

### 3.2.2 Declaration and Header Fields

No errors were reported in the Document Declaration file and data file headers. This portion of the tape meets the CALS MIL-STD-1840A requirements.

## 4. IGES Analysis

The tape contained eight IGES files. Each file was viewed by at least one software application. The required basic conformance statement was found in the Start section of the files. Files Q012 and Q013 were selected for the detailed analysis provided below.

The AFCTB has several tools for viewing IGES files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

These files were evaluated using IDA's *parser/verifier* set for CALS Class I. This utility reported all eight files meet the specification defined in MIL-D-28000A. While no CALS errors were reported, all files had basic IGES errors and/or warnings. These deficiencies were disjointed line segments, or disjointed arcs. When viewed in a technical publication these deficiencies were not apparent; however, when these areas were examined in detail they could be seen. In some cases these disjointed lines were thickened to hide the gaps and overlapping arcs.

A more critical error, displayed during the evaluation, was the use of entity 230, sectioned areas to make the arrow heads and circular connect points. All files displayed this property. For the most part it did not cause a problem. However, in files Q012 and Q014 this entity made the files unusable in several applications. The connect points were joined together resulting in sets of triangle shapes on the image.

It was also noted that the basic leader line was thickened. This made the arrowhead look different than the rest of the



lines. The log files from IDA's *parser/verifier*, ITI's *IGESWorks* and AUTODESK's *AutoCAD R12* with the 5.1 translator, for files D001Q012 and Q013 are included in the Appendix of this report.

The files were converted using AUTODESK's 5.1 *IGES* translator in *AutoCAD R12*. While no errors were reported, many warning statements were issued. The statements addressed discontinuous line segments and non-closed sectioned areas. In file Q012, the line coming from the U3 component does not have a complete arrowhead.

According to Edward Clapp of AUTODESK, "The IGES files contained several instances of IGES composite curve entities (entity type 102) which are not in conformance with the specification. The first sentence of Section 3.3 of IGES version 4.0 reads, "A composite curve is a continuous curve that results from the grouping of certain individual constituent entities into a logical unit." There are several instances of this entity in these file which have disjoint full circles as their constituents. These composite curves are used as outer boundaries for instances of section area entities (entity type 230), apparently with the expectation on the part of the sending system that they will instead be used as separate curves whose interiors will be filled. It is a common and sensible practice on the part of receiving systems to fix up the composite curves by connecting the disjoint constituents. With the specific kind of misuse of the composite curve found in these files, these attempts result in unusable drawings on the receiving system, as can be seen in the output plots.

The selected files were translated using the AUTODESK'S *iges2ckm* utility without a reported error. The resulting files were read into another utility available within the AFCTB, and displayed. The added 230 entities were noted as missing. The connecting circles and some arrowheads were also missing.

The selected files were translated using Cadkey's *ig2c* utility. Both files had reported errors. The message was "entity types do not match @ parameter index xxxx" (2911 was one reported). Found entity type 102, expected type 106. When this was checked, the parameter and directory entities were correct. When displayed and printed the images appeared to be complete.

The files were converted using a utility available within the AFCTB, with no reported errors. The resulting files

were read into Island Software's *IslandDraw*, displayed and printed without a reported error. File Q012 and Q013 displayed the sectioned area problem. These files would have been unusable in a technical publication. Also noted were text areas that appeared to be thickened.

The files were read using Carberry's *CADLeaf* software without a reported error. When displayed, the selected files showed sectioned areas between the connect points and arrowheads. By following the areas it was possible to see how the connect points had been completed.

The selected files were read and displayed using IDA's *CALSVIEW* without a reported error. The sectioned areas were visible as filled in triangles. Also noted were several heavy text areas. This appeared to be thicken lines.

The selected files were read and displayed using IDA's *IGES-View* and *IGESView for Windows* without a reported error. The sectioned areas appeared as cross hatched. All text appeared to be heavier than the rest of the image.

The selected files were read into ITI's *IGESWorks* without a reported error. Noted as missing were the connect points created using the 230 entity.

The selected files were read and displayed using InterCAPS's *X-Change*. No errors were noted.

The IGES files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into Rosetta Technologies' *Preview*, displayed and printed. No errors were noted.

The IGES files meet the CALS MIL-D-28000A specification. However, the use of entity 230, to create the arrowheads and connect points, caused some systems to display unusable files. The reported IGES warnings were not critical for technical publication applications.

## 5. SGML Analysis

The tape contained one text and four DTD files. The basic DTD contained the graphic references and pointed to the basic ATOS DTD, which was named BSPEC. The BSPEC DTD pointed to two other subset DTDs; CALSFIGS (figure unique tags) and CALSTABS (table unique tags).

```
BASIC (G003) ----> BSPEC (G004)
                  |> CALSTABS (G005)
                  |> CALSFIGS (G006)
```

The AFCTB has several parsers available for evaluating submitted DTD and text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or text files required by each system are not documented in the report.

The text and DTD files were evaluated using Exoterica's *Validator ex1* parser. Two warnings were issued for the DTD; a mixed content model, and a duplicate graphic reference.

```
<!-- **Warning** in "\xgml\9467.dtd", line 122:
  A general entity name has been declared more than once.
  The entity is "M0702".
  <!ENTITY M0702 SYSTEM NDATA fax>
      ^^^^^
-->
<!-- **Warning** in "i:\94067\bspec.dtd" (entity "%BSPEC"), line 342,
  used in "\xgml\9467.dtd", line 161:
  An element with mixed content should permit data characters
  ("#PCDATA")
  everywhere.
  The element being declared is "WARNING".
  <!ELEMENT warning - - (title?, (%txt; | para | list)+) >
                                          /\
```

The text and DTD files were tested using Exoterica's *XGML-Normalizer* parser. No errors or warnings were issued by this utility.

The text and DTD files were evaluated using the Public Domain *sgmls* parser. No errors or warnings were issued by this program.

The SGML files meet the CALS MIL-M-28001B specification.

## 6. Raster Analysis

The tape contained eight Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported all eight files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. No problems were noted.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using a utility available within the AFCTB, without a reported error. The resulting files were read into Island Software's *IslandPaint* and displayed.

The Raster files were read into Carberry's *CADLeaf* software and displayed without a reported error.

The files were read using IDA's *CALSVIEW* and displayed without a reported error.

The files were read and displayed using IDA's *IGESVIEW* and *IGESVIEW for Windows* without a reported error.

The files were read and displayed using Inset Systems' *HiJaak for Windows* without a reported error.

The files were read and displayed using InterCAP's *X-Change* without a reported error.

The Raster files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into Rosetta Technologies' *Preview* and displayed.

The Raster files were imported into Expert Graphics' *Rx-Highlight* and displayed without a reported error.

The Raster files meet the CALS MIL-R-28002A specification.

## 7. CGM Analysis

The tape contained two CGM files. The files were evaluated using ATC's *MetaCheck* with CALS options. No CALS or CGM errors or warnings were reported by this utility.

The CGM files were evaluated using the beta AFCTN *validcgm* utility. This utility reported no errors in either file.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The CGM files were converted using a utility available within the AFCTB, without a reported error. The resulting files were read into Island Software's *IslandDraw* v3.1 and displayed. In file C001, the text font was noted in error with the word "CAUTION" extending beyond the symbol, toward the right.

The files were read into Carberry's *CADLeaf* software and displayed. File C001 had a problem with the text extending beyond the graphics, to the right.

The files were read into IDA's *CALSVIEW*. File C001 had a text font problem with the text extending beyond the graphics, to the right. The type font appeared to be wrong.

The files were imported into the Micrografx *Designer* without a reported error. File C001 displayed and printed correctly.

The files were read into ATC's *ForReview* without a reported error. Both files required the background color be changed from black to white in order to see the image. The text exceeded the length of the line to the right.

The files were imported into Lotus' *Freelance* and displayed. The text font in file C001 was incorrect. The text was displayed and printed in very small letters.

The files were imported into SPC's *Harvard Graphics v3.05* without a reported error. File C001 did not display the line between the text and the graphics. The text exceeded the length of the graphics to the right.

The files were read into Inset Systems' *HiJaak Pro* without a reported error. File C001 had a problem in the text font. The text extended beyond the length of the line between the graphics and the text.

The files were imported directly into Island Software's *IslandDraw v4.0* without a reported error. The image appeared to be correct although the text was not centered on the line.

The files were read into InterCAP's *X-Change* without a reported error. The text font was in error, and the text exceeded the length of the line toward the right.

The files were imported into Corel's *Ventura Publisher* without a reported error. File C001 had a noted problem with the text. The displayed and printed text was very small and located on the left side of the line.

While both CGM files were reported without error most applications, in the AFCTB, had problems with the text in file C001. The text was normally too large and the words exceeded the length of the line to the right. The CGM files meet the CALS MIL-D-28003 specification.

## 8. Conclusions and Recommendations

The physical structure of the tape had no reported errors or warnings. The CALS headers were also correct. This portion of the tape meets the requirements defined in MIL-STD-1840A.

The IGES files meet the CALS MIL-D-28000A specification. While no CALS IGES errors were reported, five files (Q56, Q57, Q58, Q74, and Q75) had basic critical IGES errors. These files could not be used by some publication systems using their IGES translator. The construction of these files using entity 230 to define areas that are not closed caused problems. This is a serious misuse of the IGES entities.

The SGML files had no reported errors, and meet the CALS MIL-M-28001B specification.

The Raster files meet the CALS MIL-R-28002A specification.

The CGM files meet the CALS MIL-D-28003 specification, although most applications had problems with the text font in file C001.

The tape submitted by O'Neil & Associates, Inc. meets the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information  
ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange  
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 3 07:49:13 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set073

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001C001	CGM	F/00080	00800/000003	Extracted
D001C002	CGM	F/00080	00800/000003	Extracted
D001G003	DTD	D/00260	02048/000002	Extracted
D001G004	DTD	D/00260	02048/000008	Extracted
D001G005	DTD	D/00260	02048/000002	Extracted
D001G006	DTD	D/00260	02048/000002	Extracted
D001Q007	IGES	F/00080	02000/000066	Extracted

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

D001R015	Raster	F/00128	02048/000007	Extracted
----------	--------	---------	--------------	-----------

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

D001T023	Text	D/00260	02048/000043	Extracted
----------	------	---------	--------------	-----------

Catalog Process terminated normally.



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## 9.2 Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 3 07:48:09 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1ONA001

4

Label Identifier: VOL1

Volume Identifier: ONA001

Volume Accessibility:

Owner Identifier:

Label Standard Version: 4

HDR1D001

ONA001000100010000000 94153 00000 000000

Label Identifier: HDR1

File Identifier: D001

File Set Identifier: ONA001

File Section Number: 0001

File Sequence Number: 0001

Generation Number: 0000

Generation Version Number: 00

Creation Date: 94153

Expiration Date: 00000

File Accessibility:

Block Count: 000000

Implementation Identifier:

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

##### End of Volume ONA001 #####

##### End Of Tape File Set #####

Deallocating /dev/rmt0...

Tape Import Process terminated normally.

## 9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri Jun 3 07:49:13 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set073

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: O'Neil & Assoc. CAGE 83007

srcdocid: TO 12R2-2ARC208-113

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19940526

dstsys: RAYTHEON CAGE 49956

dstdocid: TO 12R2-2ARC208-113

dstrelid: NONE

dtetrn: 19940602

dlvacc: NONE

filcnt: C2,G4,Q8,R8,T1

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Technical Publication

doctl: NONE

Found file: D001C001

Extracting CGM Header Records...

Evaluating CGM Header Records...

srcdocid: TO 12R2-2ARC208-113

dstdocid: TO 12R2-2ARC208-113

txtfilid: W

figid: INTRO-CAUTION-ESD

srcgph: ESDCAU

doccls: UNCLASSIFIED

notes: NONE

Saving CGM Header File: D001C001\_HDR

Saving CGM Data File: D001C001\_CGM

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Found file: D001G003  
Extracting DTD Header Records...  
Evaluating DTD Header Records...

srcdocid: TO 12R2-2ARC208-113  
dstdocid: TO 12R2-2ARC208-113  
notes: 1 of 4

Saving DTD Header File: D001G003\_HDR  
Saving DTD Data File: D001G003\_DTD

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Found file: D001Q007  
Extracting IGES Header Records...  
Evaluating IGES Header Records...

srcdocid: TO 12R2-2ARC208-113  
dstdocid: TO 12R2-2ARC208-113  
txtfilid: W  
figid: 5-1  
srcgph: M0728  
doccls: UNCLASSIFIED  
notes: NONE

Saving IGES Header File: D001Q007\_HDR  
Saving IGES Data File: D001Q007\_IGS

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Found file: D001R015  
Extracting Raster Header Records...  
Evaluating Raster Header Records...

srcdocid: TO 12R2-2ARC208-113  
dstdocid: TO 12R2-2ARC208-113  
txtfilid: W  
figid: 1-1  
srcgph: M0701  
doccls: UNCLASSIFIED  
rtype: 1  
rorient: 000,270  
rpelcnt: 001683,001696  
rdensty: 0300  
notes: NONE

---

Saving Raster Header File: D001R015\_HDR  
Saving Raster Data File: D001R015\_GR4

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Found file: D001T023  
Extracting Text Header Records...  
Evaluating Text Header Records...

srcdocid: TO 12R2-2ARC208-113  
dstdocid: TO 12R2-2ARC208-113  
txtfilid: W  
doccls: UNCLASSIFIED  
notes: NONE

Saving Text Header File: D001T023\_HDR  
Saving Text Data File: D001T023\_TXT

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

## 9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001      ' ---  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
ESDCAU.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
TXTRES.D.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
TO12R22ARC208113.G.dtd'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
TO12R22ARC208113.G.dtd'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
TO12R22ARC208113.G.dtd'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
TO12R22ARC208113.G.dtd'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0728.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T1131.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T11311.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T11315.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T1133.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T1135.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T1137.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
T1139.Q.igs'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0701.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0702.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0710.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0712.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0738.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0739.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0740.R.cci'.  
/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
M0741.R.cci'.
```

/cals/caps/Bin/read1840A: writing data file 'aftb9467/TO12R2-2ARC208-1/  
W.T.sgm'.

-- declaration file indicates 1 files of type T  
-- declaration file indicates 4 files of type G  
-- declaration file indicates 0 files of type H  
-- declaration file indicates 8 files of type Q  
-- declaration file indicates 8 files of type R  
-- declaration file indicates 2 files of type C  
-- declaration file indicates 0 files of type X  
-- declaration file indicates 0 files of type P  
-- declaration file indicates 0 files of type Z

---

## 10. Appendix B - Detailed IGES Analysis

### 10.1 File D001Q012

#### 10.1.1 Parser/Verifier Log

```
*****
****  IGES PARSE/VERIFIER  ****
****      MARCH 1993      ****
****  IGES Data Analysis  ****
****      (708) 344-1815  ****
*****
```

Input file is q012.igs

Checking conformance to CALS Class I (MIL-D-28000A 2/10/92)

Today is June 3, 1994 10:38 AM

```
*****
****  CHECK FILE SYNTAX  ****
*****
```

Section	Records
Start	5
Global	3
Directory	2926 ( 1463 Entities)
Parameter	2020
Terminate	1

No syntax errors detected.

```
*****
****  SUMMARY AND STATISTICS  ****
*****
```

#### \*\*\* File and Product Name Information \*\*\*

```
File name from sender      = 't1135'
File creation Date.Time    = '940324.115216'
Model change Date.Time     = ''
Author                     = 'Brian Keefe'
Department                  = ''
Product name from sender   = 'Xerox Expert'
Destination product name   = ''
```

---

\*\*\* Parameter Delimiters \*\*\*

Delimiter = ','  
Terminator = ';'

\*\*\* Originating System Data \*\*\*

System ID = 'Xerox Expert version 5.0'  
Preprocessor version = '5.0'  
Specification version = 6 (IGES 4.0)

\*\*\* Precision levels \*\*\*

Integer bits = 16  
Floating point - Exponent = 38 Mantissa = 7  
Double precision - Exponent = 38 Mantissa = 7

\*\*\* Global Model Data \*\*\*

Model scale = 1.0000E+00  
Unit flag = 1  
Units = 'INCH'  
Line weights = 3  
Maximum line thickness = 4.166667E-02  
Minimum line thickness = 1.388889E-02  
Granularity = 1.000000E-05  
Maximum coordinate = 1.700000E+01

Drafting standard applicable to original data is not specified.

\*\*\* Status Flag Summary \*\*\*

Blank status:	Visible	1463
	Blanked	0
Independence:	Independent	1283
	Physically Subordinate	178
	Logically Subordinate	2
	Totally Subordinate	0
Entity use:	Geometry	1012
	Annotation	448
	Definition	2
	Other	1
	Logical/Positional	0
	2D parametric	0
	Construction geometry	0
	Not Specified	0



Hierarchy:    Structure DE applies        1463  
              Subordinate DE applies        0  
              Hierarchy property applies    0  
              Not Specified                0

\*\*\* Entity Occurrence Counts \*\*\*

Entity	Form	Level	Count	Type
-----	----	-----	-----	----
100	0	0	108	Circular arc
102	0	0	54	Composite curve
110	0	0	796	Line
212	0	0	448	General note
230	0	0	54	Sectioned area (Standard Crosshatching)
404	0	0	1	Drawing
406	16	0	1	Property - Drawing size
410	0	0	1	View - Orthographic parallel

\*\*\* Entity Count by Level \*\*\*

Level	Count
0	1463

\*\*\* Labeling Information \*\*\*

100% of the entities are labeled.

Unlabeled        0

Label	Count	Label	Count	Label	Count
View	1*	Line	796*	Arc	13*
GNote	448*	Circle	95*	Composit	54
Section	54*	Property	1	Drawing	1*

NITPICK 2327: One or more of the flagged entity labels are not right-justified.

\*\*\* Line Fonts Used in Data \*\*\*

100	102	104	106	108	110	112	114	
-	-	-	-	-	-	-	-	Undefined
108	54	-	-	-	792	-	-	Solid
-	-	-	-	-	4	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

---

\*\*\* Line Widths Used in Data \*\*\*

Weight	Count	Width
Defaulted	904	(0.0139)
1	559	(0.0139)

\*\*\* Colors Used in Data \*\*\*

Defaulted	111
Green	1352

\*\*\*\*\*  
\*\*\*\*\* ENTITY ANALYSIS \*\*\*\*\*  
\*\*\*\*\*

\*\*\* Entity type: 100

ERROR 2242: Radii not equal at D 9; difference is 1.131860E-04.  
ERROR 2242: Radii not equal at D 11; difference is 1.058693E-04.

\*\*\* Entity type: 102

ERROR 2033: End points of curves D 2463 and D 2465 disjoint by  
9.728355E-01 at D 2467.  
ERROR 2033: End points of curves D 2573 and D 2575 disjoint by  
1.124999E+00 at D 2585.  
ERROR 2033: Messages regarding disjoint composite curves suppressed.  
NOTE 2391: Start point D 2847 and D 2849 are the same, possible reversal  
of D 2849.

\*\*\* Entity type: 110

-- 796 lines averaging 4.587300E-01 units --

\*\*\* Entity type: 212

448 text strings in data file.  
Average text aspect ratio in file is 0.9122675.  
Minimum text aspect ratio in file is 0.9002703.  
Maximum text aspect ratio in file is 0.9200000.

FONTS USED IN FILE

FONT	COUNT	NAME
1	434	Default ASCII Style
1003	14	Drafting Font

\*\*\* Entity type: 230

NITPICK 2076: Entity does not have Annotation flag set at D 2455. NITPICK 2076: Entity does not have Annotation flag set at D 2461. NITPICK 2076: Messages regarding entity use (annotation) suppressed.

\*\*\* Entity type: 404

NITPICK 2074: Entity use flag must be 1 for Drawing entity at D 2925. Drawing at D 2925 contains 1 views. Drawing at D 2925 contains 0 annotation entities.

\*\*\* Entity type: 406

\*\*\* Entity type: 410

NITPICK 2073: Entity use flag must be 1 for View entity at D 1.  
Scale of view at D 1 is 1.000000E+00.  
Orthographic View entity at D 1 has 0 clipping planes specified.  
XMIN = Not Set XMAX = Not Set  
YMIN = Not Set YMAX = Not Set  
ZMIN = Not Set ZMAX = Not Set

\*\*\* Message Summary \*\*\*

2007: 60 Mathematical discontinuities.  
2015: 2 Mathematically incorrect definitions.  
2016: 56 Invalid entity use flag.

\*\*\* Error Summary \*\*\*

0 fatal errors  
0 severe errors  
62 errors  
0 warnings  
0 cautions  
57 nitpicks  
1 notes

\*\*\* End of Analysis of q012.igs \*\*\*

## 10.1.2 Parser Log - IGESWorks

IGES/Works v1.4.1  
International TechneGroup Incorporated  
Validation Logfile

Date: June 03, 1994  
Model: q012

\*\*\*\*\* Validation Parameters \*\*\*\*\*

### TOLERANCE CONFIGURATION VALUES

```

ZERO_TOL                = 1.000000e-13
MODEL_SPACE_PNT_COIN_TOL = 1.000000e-03
PARM_SPACE_PNT_COIN_TOL  = 1.000000e-08
ISO_PARM_CURVE_TOL       = 1.000000e-08
NON_CONV_TOL             = 1.000000e-12
KNOT_COIN_TOL            = 1.000000e-10
SAME_INTER_TOL           = 1.000000e-12
PARALLEL_LINES_TOL       = 1.000000e-07
ANGLE_COIN_TOL           = 1.000000e-05
PNT_PROJ_TOL             = 1.000000e-07
COLIN_TOL                = 1.000000e-07
COPLANAR_TOL             = 1.000000e-08
ZERO_NORMAL_TOL          = 1.000000e-06
SAME_TANGENT_TOL         = 1.000000e-04
SAME_CURVATURE_TOL       = 1.000000e-04
SAME_DERIVATIVE_TOL      = 1.000000e-03
MODEL_LINEAR_APPROX_TOL  = 2.220446e-16

```

\*\*\*\*\* Entity Listing Before Validation \*\*\*\*\*

Count	Type	Form	Description
-----	----	----	-----
108	100	0	Circular Arc
102	0	Composite	Curve
796	110	0	Line
448	212	0	General Note (Simple)
54	230	0	Section Area (Standard Fill)
1	404	0	Drawing (form 0)
1	406	16	Property (Drawing Size)
1	410	0	View

1463 - Number of entities in selection list

---

\*\*\*\*\* Entity Validation \*\*\*\*\*

\*\*\* Warning (IEVM\_LABEL\_NOT\_RJ) \*\*\*

(DE 1, TF 410:0) The Label Display field in this entity's DE section was not set for right justification.

Action taken: The Label Display field has been set to be right-justified.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Warning (IEVM\_RADII\_NOT\_EQUAL\_100) \*\*\*

(DE 9, TF 100:0) This circular arc entity's start point and end point radii are not equal in length. Start point radius: 2.9991422e-01. Terminate point radius: 3.0002740e-01.

Action taken: Start point moved 5.6593004e-05 units from 7.8843040e+00, 1.4435400e+00 to 7.8843583e+00, 1.4435558e+00. Terminate point moved 5.6593004e-05 units from 7.8570060e+00, 1.5083390e+00 to 7.8569568e+00, 1.5083110e+00.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Warning (IEVM\_NON\_CONTINUOUS\_102) \*\*\*

(DE 2467, TF 102:0) This Composite Curve entity (102) is not continuous within the stated tolerance. The terminate point of the first curve does not equal the start point of the next curve.

Action taken: The curve was made continuous by the following actions. A line, DE 2927, was added between DE's 2463 and 2465.

\*\*\* Warning (IEVM\_NON\_CONTINUOUS\_102) \*\*\*

(DE 2585, TF 102:0) This Composite Curve entity (102) is not continuous within the stated tolerance. The terminate point of the first curve does not equal the start point of the next curve.

Action taken: The curve was made continuous by the following actions. A line, DE 2929, was added between DE's 2573 and 2575. A line, DE 2931, was added between DE's 2575 and 2577. A line, DE 2933, was added between DE's 2577 and 2579. A line, DE 2935, was added between DE's 2579 and 2581. A line, DE 2937, was added between DE's 2581 and 2583.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Entity Validation Summary:

Type	Form	Entity Count	Number Valid	Number of Corrected		Number of Uncorrected	
				Warnings	Errors	Warnings	Errors
Global Section		1	1	0	0	0	0
100	0	108	0	108	2	0	0
102	0	54	29	0	25	0	0
110	0	840	44	796	0	0	0
212	0	448	0	448	0	0	0
230	0	54	0	54	0	0	0
404	0	1	0	1	0	0	0
406	16	1	1	0	0	0	0
410	0	1	0	1	0	0	0
Totals:		1508	75	1408	27	0	0

The following message was issued and suppressed 1403 times:

The Label Display field in this entity's DE section was not set for right justification.

The following message was issued and suppressed 20 times:

This Composite Curve entity (102) is not continuous within the stated tolerance.  
The terminate point of the first curve does not equal the start point of the next curve.

A message is suppressed when it has been issued more than 5 times.  
This value is controlled by the 'MAX\_MESSAGE' configuration parameter.  
\*\*\*\*\*

---

### 10.1.3 Post Processor Log - AutoCAD

Title: IGESIN Journal (v5.1 Nov 05 1992)

=====  
File: C:/TMP/Q012.xli

Date: Fri, Jun 03, 1994

Time: 10:03:40  
=====

EVALUATION VERSION -- NOT FOR RESALE

Translator S/N: 117-10075750

Translating from IGES file: C:/TMP/Q012.IGS

to AutoCAD Drawing: C:\Q012.dwg  
=====

Options obtained from: default settings

Curves Approximated to Tolerance of 0.01

Surfaces Approximated to Tolerance of 0.01

Text Font/Style mapping:

IGES Text font	Style Name	ACAD Font
0	SYMBOL0	iges0
1	STANDARD	txt
2	LEROY	txt
3	FUTURA	txt
6	COMP80	txt
12	GOTHICE	gothice
13	GOTHICI	gothici
14	ROMANS	romans
17	ROMANT	romant
18	ROMAND	romand
19	OCR	txt
1001	SYMBOL1	iges1001
1002	SYMBOL2	iges1002
1003	SYMBOL3	iges1003
2001	KANJI	bigfont

IGES Linefont/AutoCAD Linetype mapping

IGES Line Font	AutoCAD linetype	Shape file
0	BYLAYER	
1	CONTINUOUS	
2	DASHED	acad.lin
3	PHANTOM	acad.lin
4	CENTER	acad.lin
5	DOT	acad.lin

---

---

Parse phase

\*\*\* Warning (IAFP\_LARGER\_SGL\_SIG) \*\*\*

C:/TMP/Q012.IGS, line 8: IGES file has greater number of significant digits in single precision numbers than this system.

\*\*\* Warning (IEVM\_LABEL\_NOT\_RJ) \*\*\*

(DE 1, TF 410:0) DE has an invalid label justification.

Action taken: Label has been right justified.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Warning (IEVM\_RADII\_NOT\_EQUAL\_100) \*\*\*

(DE 9, TF 100:0) Entity's radii are not equal. Start point radius:  
2.9991422e-001. Terminate point radius: 3.0002740e-001.

Action taken: Start point moved 5.6593004e-005 units from 7.8843040e+000,  
1.4435400e+000 to 7.8843583e+000, 1.4435558e+000. Terminate point moved  
5.6593004e-005 units from 7.8570060e+000, 1.5083390e+000 to 7.8569568e+000,  
1.5083110e+000.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

=====  
Start Section:

Drawing name: t1135. This file was converted by Expert.  
Compliant with CALS class 1, per MIL-D-28000 Amendment 1.

DATE: 24-Mar-94 11:52:16

Global Section:

Parameter Delimiter: ,  
Record Delimiter: ;  
Sending Product ID: Xerox Expert  
File Name: t1135  
System ID: Xerox Expert version 5.0  
Preprocessor Version: 5.0  
Size of Integer: 16  
Sgl. Precision Mag: 38  
Sgl. Precision Sig: 7  
Dbl. Precision Mag: 38  
Dbl. Precision Sig: 7  
Receiving Product ID:  
Model Space Scale: 1.000000  
Unit Flag: 1



Unit String: INCH  
# of Line Weights: 3  
Maximum Line Width: 0.041667  
Creation Date: 03/24/94 11:52:16  
Minimum Resolution: 0.000010  
Maximum Coordinate: 17.000000  
Author: Brian Keefe  
Organization:  
IGES Version Number: 6  
Drafting Standard: 0

Entity Summary:

Type	Form	Description	Count
100	0	Circular Arc	108
102	0	Composite Curve	54
110	0	Line	796
212	0	General Note (Simple)	448
230	0	Section Area (Standard Fill)	54
404	0	Drawing (form 0)	1
406	16	Property (Drawing Size)	1
410	0	View	1
Total			1463

Translation phase

\*\*\* Error (ACAD\_APPROXCURVEERROR) \*\*\*

Internal error 2302 approximating curve at DE: 2455, TYPE: 230, FORM: 0

\*\*\* Error (ACAD\_APPROXCURVEERROR) \*\*\*

Internal error 2302 approximating curve at DE: 2461, TYPE: 230, FORM: 0

\*\*\* Warning (IGEO\_DISCONTINUOUS) \*\*\*

( DE: 2467 TF: 102:0 NAME: Composite Curve )

The IGES entity is discontinuous between segment 1 and 2.

A linear segment will be added at the discontinuity for approximation.

\*\*\* Error (IGEO\_SECTAREANOTCLOSED) \*\*\*

( DE: 2469 TF: 230:0 NAME: Section Area (Standard Fill) )

The section area is not closed.

\*\*\* Error (ACAD\_APPROXCURVEERROR) \*\*\*

Internal error 2302 approximating curve at DE: 2475, TYPE: 230, FORM: 0

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Warning (IGEO\_DISCONTINUOUS) \*\*\*

( DE: 2585 TF: 102:0 NAME: Composite Curve )

The IGES entity is discontinuous between segment 1 and 2.

A linear segment will be added at the discontinuity for approximation.

<<<< PART OF LOG FILE REMOVED HERE >>>>

\*\*\* Error (IGEO\_SECTAREANOTCLOSED) \*\*\*

( DE: 2657 TF: 230:0 NAME: Section Area (Standard Fill) )

The section area is not closed.

<<<< PART OF LOG FILE REMOVED HERE >>>>

Drawing Entity (404 Form 0) at DE 2925, with

name = ,

size = 17.000000, 11.000000,

units = IN,

was processed in the AutoCAD drawing file: C:\Q012.dwg

\*\*\* Warning (ACAD\_NEW\_VIEW\_VOLUME\_GENERATED) \*\*\*

( DE: 1 TF: 410:0 )

A new view volume has been generated for the view with:

XMIN (-2.024844), XMAX (19.024846),

YMIN (-2.024846), YMAX (13.024846),

ZMIN (-2.024846), ZMAX (2.024846).

IGES Entity Summary

Type	Form	Description	Count	Processed	Errors
100	0	Circular Arc	193	193	0
102	0	Composite Curve	98	98	0
110	0	Line	757	757	0
212	0	General Note (Simple)	448	448	0
230	0	Section Area (Standard Fill)	54	54	0
404	0	Drawing (form 0)	1	1	0
406	16	Property (Drawing Size)	1	1	0
410	0	View	1	1	0
			=====	=====	=====
Totals			1553	1553	0

---

AutoCAD Entity Summary

Entity	Created	Errors
=====	=====	=====
LINE	757	0
CIRCLE	180	0
TEXT	448	0
ARC	13	0
SOLID	10	0
INSERT	85	0
POLYLINE	3	0
BLOCK	126	0

Totals	=====	=====
	1622	0

=====

Error Summary:

The following message was issued 1 time(s)  
IGES file has greater number of significant digits in single precision numbers  
than this system.

The following message was issued 1408 time(s)  
DE has an invalid label justification.

The following message was issued 7 time(s)  
Entity's radii are not equal. Start point radius: %.7e. Terminate point  
radius: %.7e.

The following message was issued 14 time(s)  
The section area is not closed.

The following message was issued 50 time(s)  
The IGES entity is discontinuous between segment %d and %d.  
A linear segment will be added at the discontinuity for approximation.

The following message was issued 30 time(s)  
Internal error %d approximating curve at DE: %d, TYPE: %d, FORM: %d

The following message was issued 1 time(s)  
A new view volume has been generated for the view with:  
XMIN (%lf), XMAX (%lf),  
YMIN (%lf), YMAX (%lf),  
ZMIN (%lf), ZMAX (%lf).

AFCTN Test Report  
94-098

AFCTB Test Report  
94-067

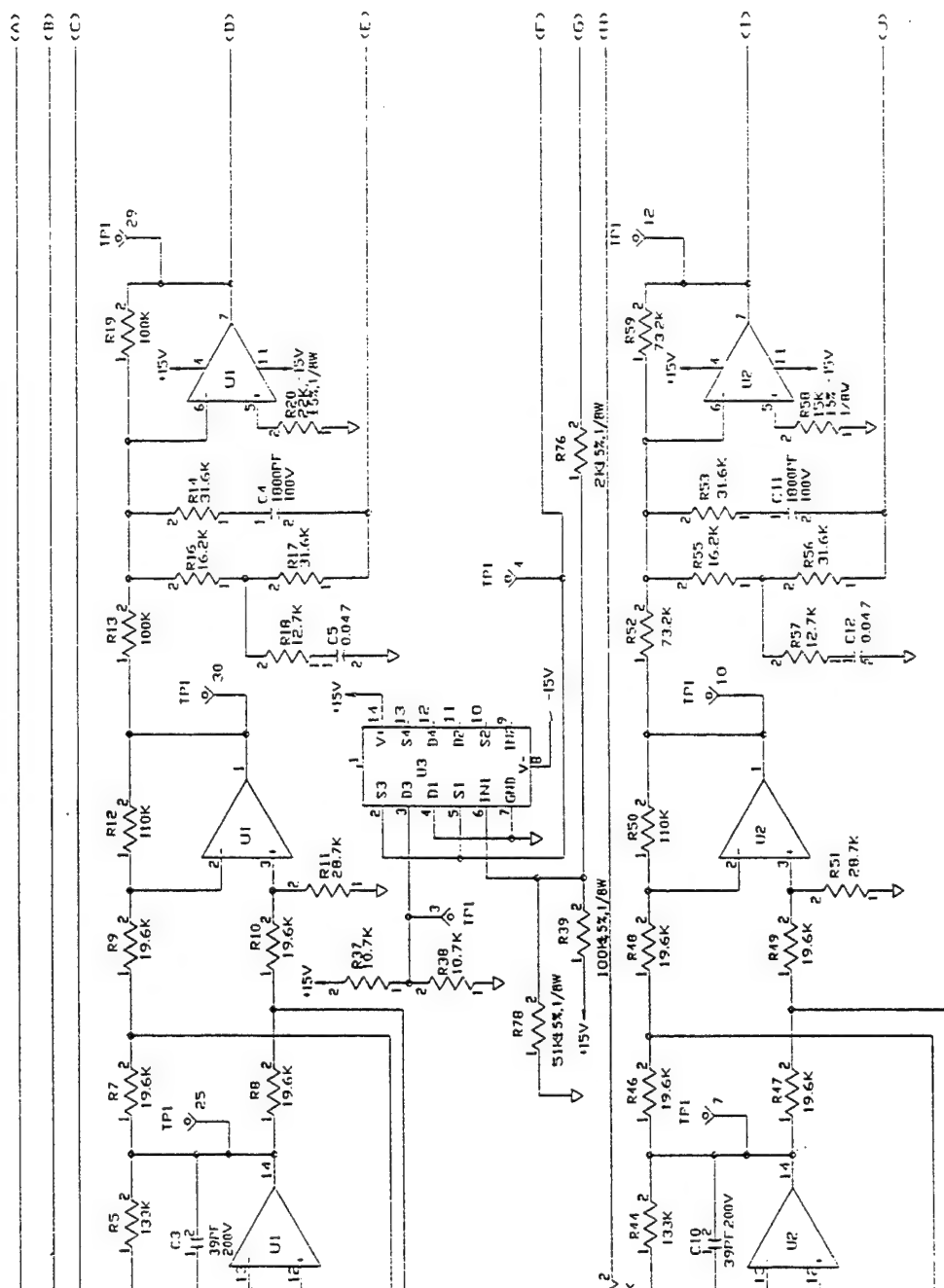
---

Status: 0  
Warning: 1467  
Error: 44  
Fatal: 0

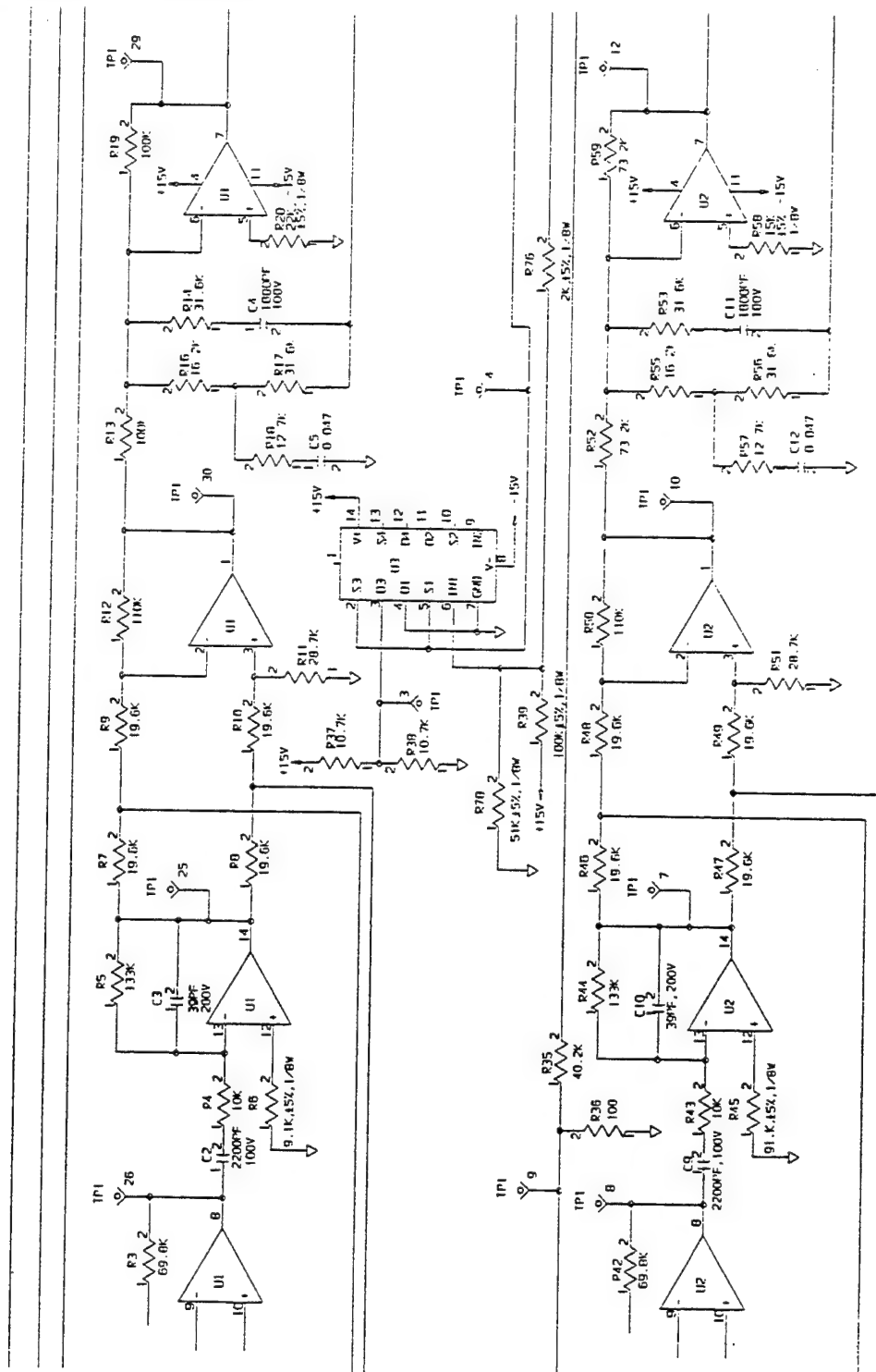
Elapsed Time:

Processor: 00:00:39  
Clock: 00:00:40  
=====

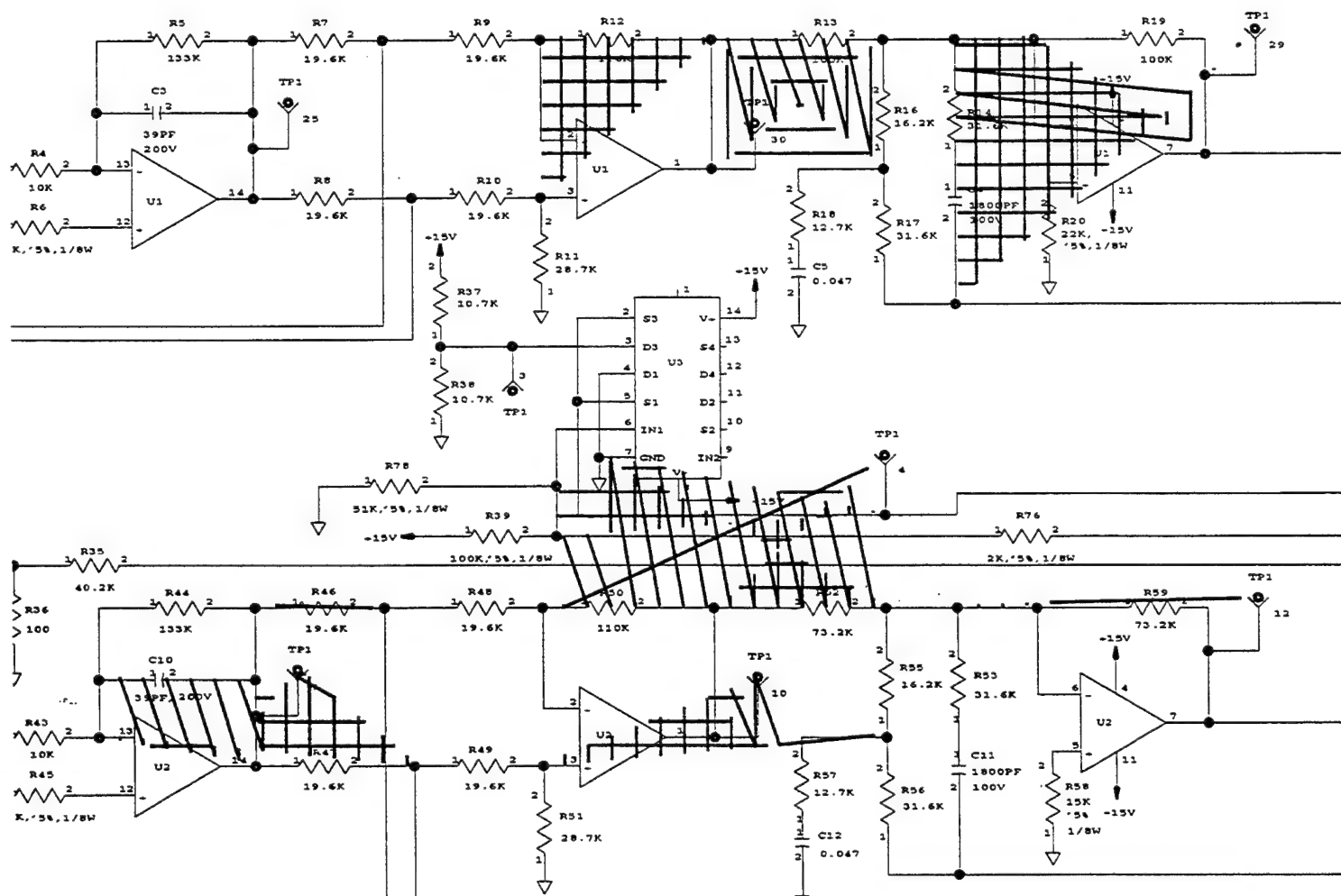
## 10.1.4 Output AutoCAD R12



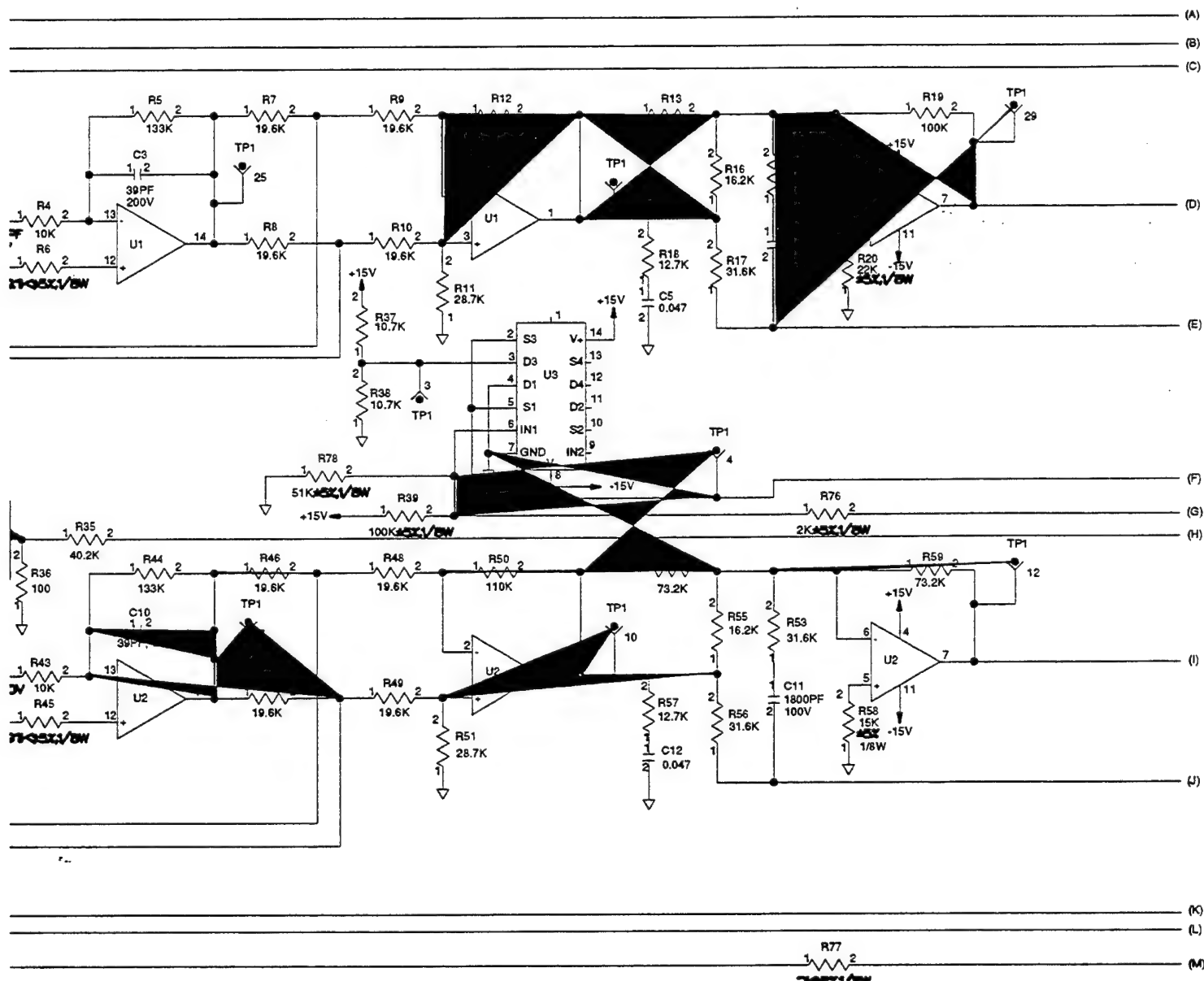
## 10.1.5 Output Cadkey v6.0



## 10.1.6 Output CADLeaf

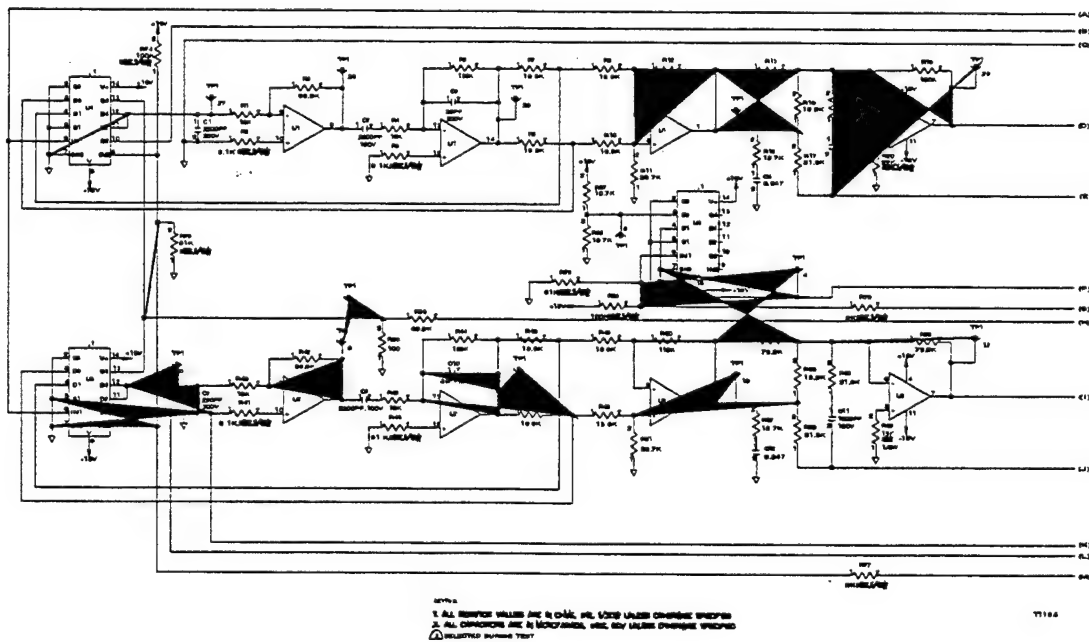


## 10.1.7 Output CALSView





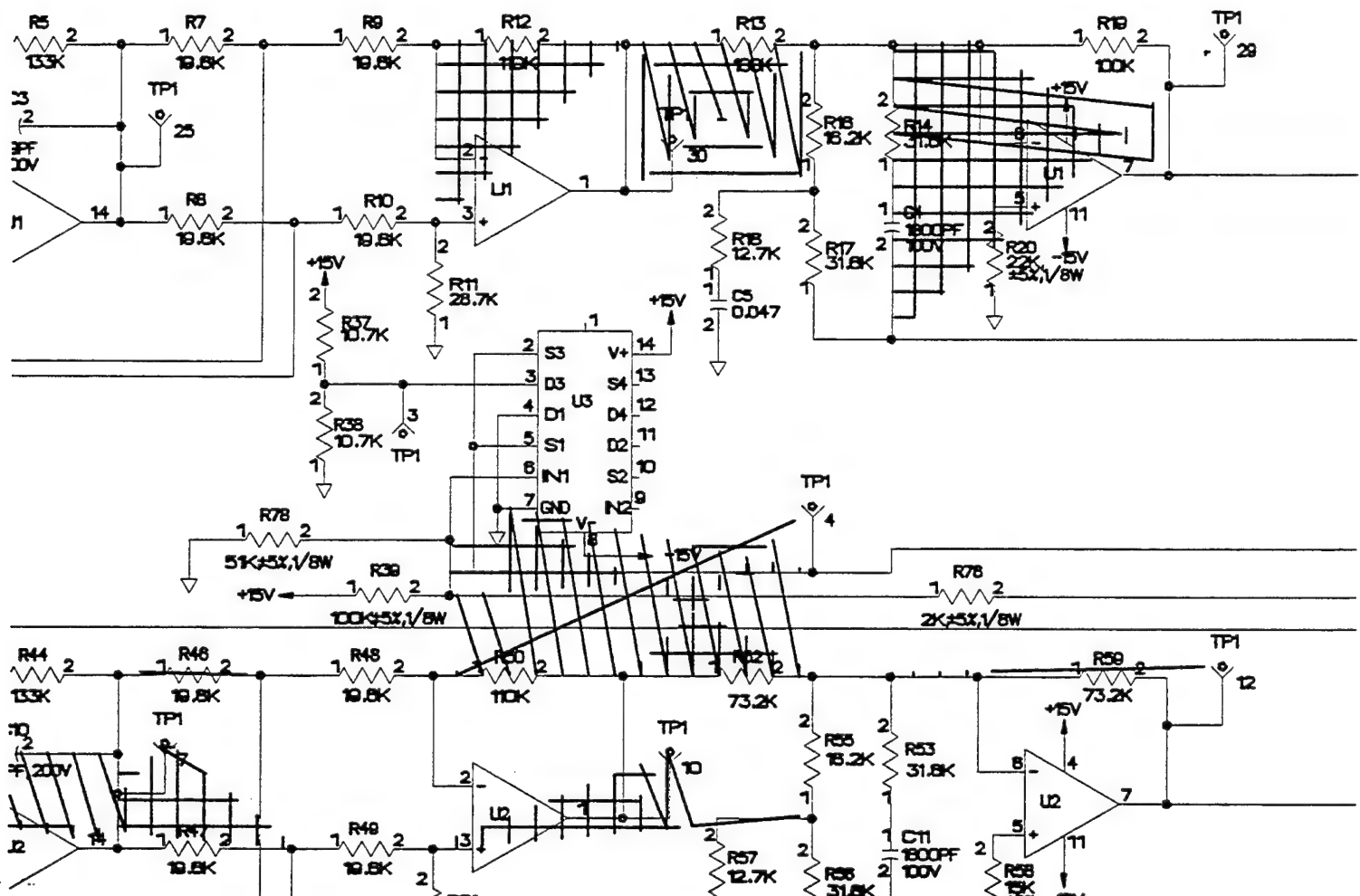
## 10.1.8 Output IslandDraw



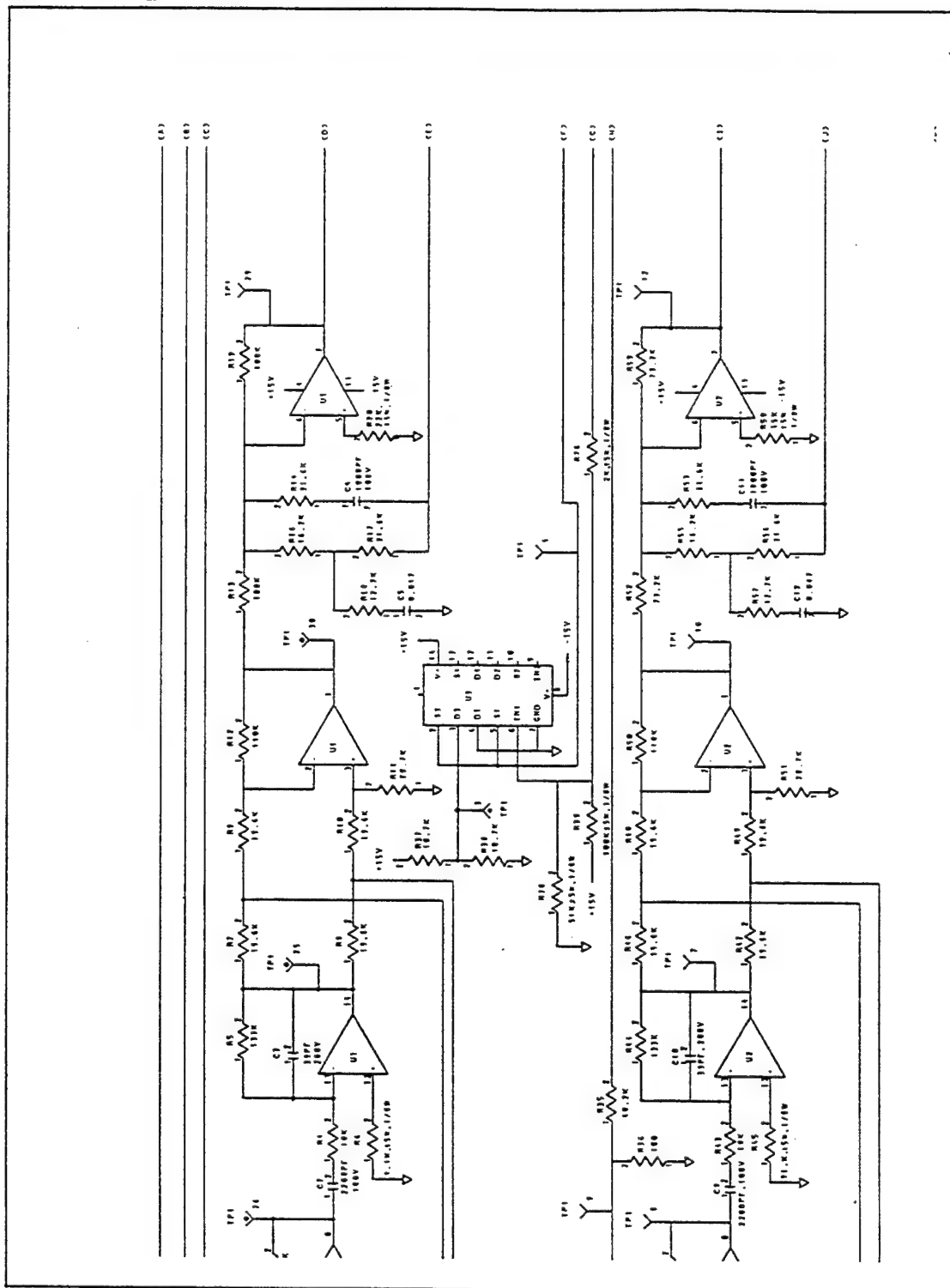
FINAL OUTPUT AT 120%

12d1D  
Q012

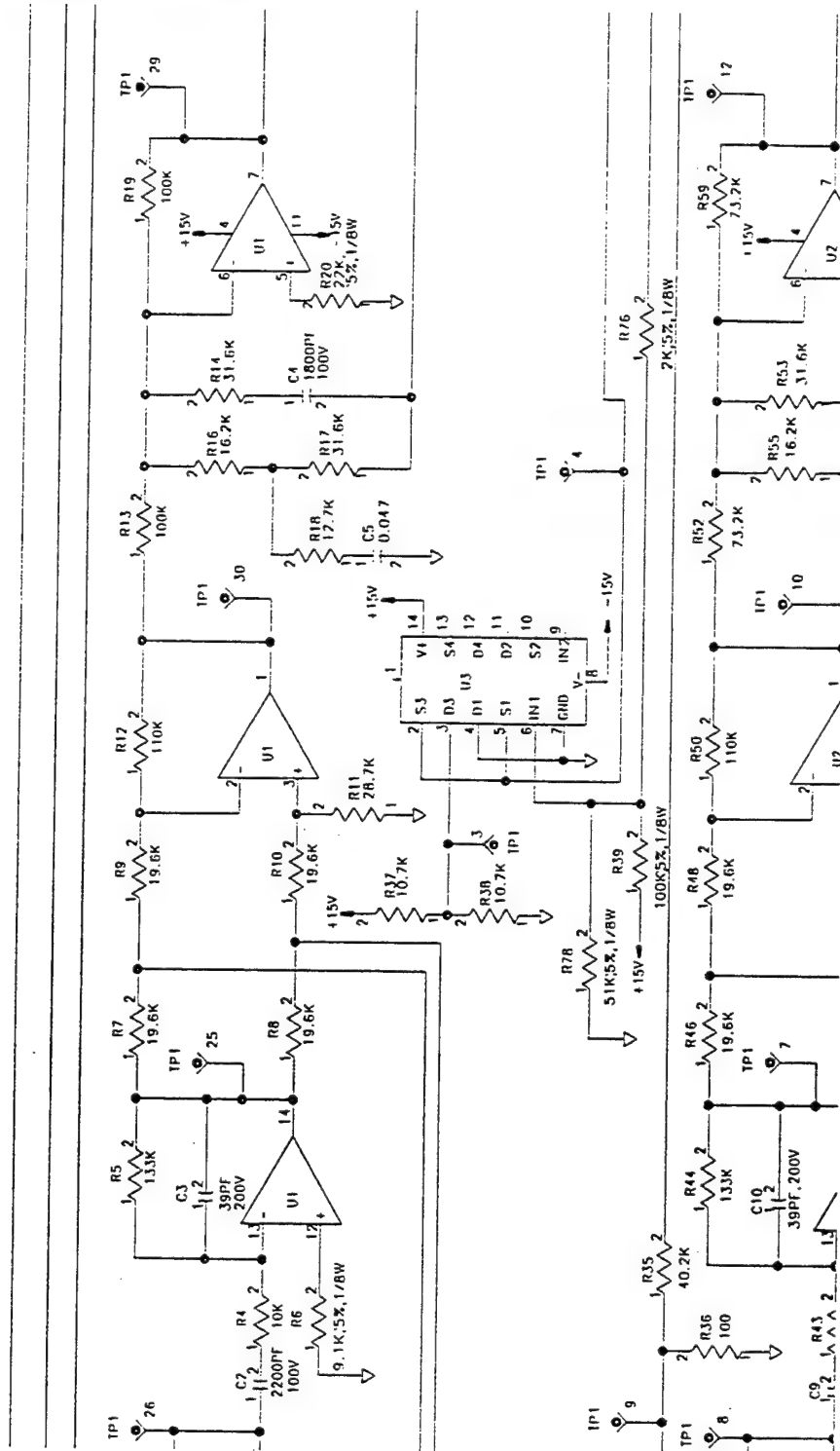
## 10.1.9 Output IGESView



## 10.1.10 Output IGESWorks



## 10.1.11 Output Preview





## 10.2 File D001Q013

### 10.2.1 Parser/Verifer Log

```
*****
***** IGES PARSE/VERIFIER *****
***** MARCH 1993 *****
***** IGES Data Analysis *****
***** (708) 344-1815 *****
*****
```

Input file is q013.igs

Checking conformance to CALS Class I (MIL-D-28000A 2/10/92)

Today is June 3, 1994 10:38 AM

```
*****
***** CHECK FILE SYNTAX *****
*****
```

Section	Records
Start	5
Global	3
Directory	2186 ( 1093 Entities)
Parameter	1547
Terminate	1

No syntax errors detected.

```
*****
***** SUMMARY AND STATISTICS *****
*****
```

#### \*\*\* File and Product Name Information \*\*\*

```
File name from sender      = 't1137'
File creation Date.Time    = '940324.115320'
Model change Date.Time     = ''
Author                     = 'Brian Keefe'
Department                 = ''
Product name from sender   = 'Xerox Expert'
Destination product name   = ''
```

---

\*\*\* Parameter Delimiters \*\*\*

Delimiter = ','  
Terminator = ';'

\*\*\* Originating System Data \*\*\*

System ID = 'Xerox Expert version 5.0'  
Preprocessor version = '5.0'  
Specification version = 6 (IGES 4.0)

\*\*\* Precision levels \*\*\*

Integer bits = 16  
Floating point - Exponent = 38 Mantissa = 7  
Double precision - Exponent = 38 Mantissa = 7

\*\*\* Global Model Data \*\*\*

Model scale = 1.0000E+00  
Unit flag = 1  
Units = 'INCH'  
Line weights = 3  
Maximum line thickness = 4.166667E-02  
Minimum line thickness = 1.388889E-02  
Granularity = 1.000000E-05  
Maximum coordinate = 1.700000E+01

Drafting standard applicable to original data is not specified.

\*\*\* Status Flag Summary \*\*\*

Blank status:	Visible	1093
	Blanked	0
Independence:	Independent	930
	Physically Subordinate	161
	Logically Subordinate	2
	Totally Subordinate	0
Entity use:	Geometry	736
	Annotation	354
	Definition	2
	Other	1
	Logical/Positional	0
	2D parametric	0
	Construction geometry	0
	Not Specified	0

Hierarchy:    Structure DE applies            1093  
                  Subordinate DE applies            0  
                  Hierarchy property applies        0  
                  Not Specified                    0

\*\*\* Entity Occurrence Counts \*\*\*

Entity	Form	Level	Count	Type
-----	----	-----	-----	----
100	0	0	97	Circular arc
102	0	0	37	Composite curve
110	0	0	565	Line
212	0	0	354	General note
230	0	0	37	Sectioned area (Standard Crosshatching)
404	0	0	1	Drawing
406	16	0	1	Property - Drawing size
410	0	0	1	View - Orthographic parallel

\*\*\* Entity Count by Level \*\*\*

Level	Count
0	1093

\*\*\* Labeling Information \*\*\*

100% of the entities are labeled.

Unlabeled            0

Label	Count	Label	Count	Label	Count
View	1*	GNote	354*	Line	565*
Arc	18*	Circle	79*	Composit	37
Section	37*	Property	1	Drawing	1*

NITPICK 2327: One or more of the flagged entity labels are not right-justified.

\*\*\* Line Fonts Used in Data \*\*\*

100	102	104	106	108	110	112	114	
-	-	-	-	-	-	-	-	Undefined
97	37	-	-	-	561	-	-	Solid
-	-	-	-	-	4	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom



---

<<<< PART OF LOG FILE REMOVED HERE >>>>

\*\*\* Line Widths Used in Data \*\*\*

Weight	Count	Width
Defaulted	662	(0.0139)
1	431	(0.0139)

\*\*\* Colors Used in Data \*\*\*

Defaulted	77
Green	1016

\*\*\*\*\*  
\*\*\*\*\* ENTITY ANALYSIS \*\*\*\*\*  
\*\*\*\*\*

\*\*\* Entity type: 100

ERROR 2242: Radii not equal at D 959; difference is 8.457600E-05.  
ERROR 2242: Radii not equal at D 961; difference is 1.134651E-04.  
ERROR 2242: Radii not equal at D 965; difference is 1.096240E-04.  
ERROR 2242: Radii not equal at D 967; difference is 8.457600E-05.  
ERROR 2242: Radii not equal at D 971; difference is 8.475487E-05.  
ERROR 2242: Radii not equal at D 973; difference is 1.141759E-04.  
ERROR 2242: Radii not equal at D 977; difference is 1.103348E-04.  
ERROR 2242: Radii not equal at D 979; difference is 8.475487E-05.

\*\*\* Entity type: 102

ERROR 2033: End points of curves D 1779 and D 1781 disjoint by  
3.156000E-01 at D 1787.  
ERROR 2033: End points of curves D 1781 and D 1783 disjoint by  
7.500000E-01 at D 1787. ERROR 2033: Messages regarding  
disjoint composite curves suppressed.  
NOTE 2391: Start point D 2067 and D 2069 are the same, possible reversal  
of D 2069.

\*\*\* Entity type: 110

-- 565 lines averaging 5.490857E-01 units --

\*\*\* Entity type: 212

354 text strings in data file.  
Average text aspect ratio in file is 0.9114522.  
Minimum text aspect ratio in file is 0.9004000.  
Maximum text aspect ratio in file is 0.9200000.

FONTS USED IN FILE

FONT	COUNT	NAME
1	331	Default ASCII Style
1003	23	Drafting Font

\*\*\* Entity type: 230

NITPICK 2076: Entity does not have Annotation flag set at D 1789.  
NITPICK 2076: Entity does not have Annotation flag set at D 1795.  
NITPICK 2076: Messages regarding entity use (annotation) suppressed.

\*\*\* Entity type: 404

NITPICK 2074: Entity use flag must be 1 for Drawing entity at D 2185.  
Drawing at D 2185 contains 1 views.  
Drawing at D 2185 contains 0 annotation entities.

\*\*\* Entity type: 406

\*\*\* Entity type: 410

NITPICK 2073: Entity use flag must be 1 for View entity at D 1.  
Scale of view at D 1 is 1.000000E+00.  
Orthographic View entity at D 1 has 0 clipping planes specified.  
XMIN = Not Set XMAX = Not Set  
YMIN = Not Set YMAX = Not Set  
ZMIN = Not Set ZMAX = Not Set

\*\*\* Message Summary \*\*\*

2007: 83 Mathematical discontinuities.  
2015: 8 Mathematically incorrect definitions.  
2016: 39 Invalid entity use flag.

\*\*\* Error Summary \*\*\*

0 fatal errors  
0 severe errors  
91 errors  
0 warnings  
0 cautions  
40 nitpicks  
1 notes

\*\*\* End of Analysis of q013.igs \*\*\*

## 10.2.2 Parser Log - IGESWorks

IGES/Works v1.4.1  
International TechneGroup Incorporated  
Validation Logfile

Date: June 03, 1994  
Model: q013

\*\*\*\*\* Validation Parameters \*\*\*\*\*

### TOLERANCE CONFIGURATION VALUES

-----

ZERO_TOL	= 1.000000e-13
MODEL_SPACE_PNT_COIN_TOL	= 1.000000e-03
PARM_SPACE_PNT_COIN_TOL	= 1.000000e-08
ISO_PARM_CURVE_TOL	= 1.000000e-08
NON_CONV_TOL	= 1.000000e-12
KNOT_COIN_TOL	= 1.000000e-10
SAME_INTER_TOL	= 1.000000e-12
PARALLEL_LINES_TOL	= 1.000000e-07
ANGLE_COIN_TOL	= 1.000000e-05
PNT_PROJ_TOL	= 1.000000e-07
COLIN_TOL	= 1.000000e-07
COPLANAR_TOL	= 1.000000e-08
ZERO_NORMAL_TOL	= 1.000000e-06
SAME_TANGENT_TOL	= 1.000000e-04
SAME_CURVATURE_TOL	= 1.000000e-04
SAME_DERIVATIVE_TOL	= 1.000000e-03
MODEL_LINEAR_APPROX_TOL	= 2.220446e-16

\*\*\*\*\* Entity Listing Before Validation \*\*\*\*\*

---

Count	Type	Form	Description
-----	----	----	-----
97	100	0	Circular Arc
37	102	0	Composite Curve
565	110	0	Line
354	212	0	General Note (Simple)
37	230	0	Section Area (Standard Fill)
1	404	0	Drawing (form 0)
1	406	16	Property (Drawing Size)
1	410	0	View

1093 - Number of entities in selection list

\*\*\*\*\* Entity Validation \*\*\*\*\*

\*\*\* Warning (IEVM\_LABEL\_NOT\_RJ) \*\*\*

(DE 1, TF 410:0) The Label Display field in this entity's DE section was not set for right justification.

Action taken: The Label Display field has been set to be right-justified.

<<<< PART OF LOG FILE REMOVED HERE >>>>

\*\*\* Warning (IEVM\_RADII\_NOT\_EQUAL\_100) \*\*\*

(DE 959, TF 100:0) This circular arc entity's start point and end point radii are not equal in length. Start point radius: 1.3500000e-02. Terminate point radius: 1.3415424e-02.

Action taken: Start point moved 4.2288002e-05 units from 6.4046360e+00, 3.6207980e+00 to 6.4046360e+00, 3.6208403e+00. Terminate point moved 4.2288002e-05 units from 6.4178350e+00, 3.6366980e+00 to 6.4178766e+00, 3.6367056e+00.

<<<< PART OF LOG FILE REMOVED HERE >>>>

\*\*\* Warning (IEVM\_NON\_CONTINUOUS\_102) \*\*\*

(DE 1787, TF 102:0) This Composite Curve entity (102) is not continuous within the stated tolerance. The terminate point of the first curve does not equal the start point of the next curve.

Action taken: The curve was made continuous by the following actions.

A line, DE 2187, was added between DE's 1779 and 1781. A line, DE 2189, was added between DE's 1781 and 1783. A line, DE 2191, was added between DE's 1783 and 1785.

<<<< PART OF LOG FILE REMOVED HERE >>>>

Entity Validation Summary:

Type	Form	Entity Count	Number Valid	Number of Corrected		Number of Uncorrected	
				Warnings	Errors	Warnings	Errors
Global Section		1	1	0	0	0	0
100	0	97	0	97	8	0	0
102	0	37	9	0	28	0	0
110	0	620	55	565	0	0	0
212	0	354	0	354	0	0	0
230	0	37	0	37	0	0	0
404	0	1	0	1	0	0	0
406	16	1	1	0	0	0	0
410	0	1	0	1	0	0	0
Totals:		1149	66	1055	36	0	0

The following message was issued and suppressed 1050 times:

The Label Display field in this entity's DE section was not set for right justification.

The following message was issued and suppressed 3 times:

This circular arc entity's start point and end point radii are not equal in length. Start point radius: %.7e. Terminate point radius: %.7e.

The following message was issued and suppressed 23 times:

This Composite Curve entity (102) is not continuous within the stated tolerance. The terminate point of the first curve does not equal the start point of the next curve.

A message is suppressed when it has been issued more than 5 times. This value is controlled by the 'MAX\_MESSAGE' configuration parameter.

\*\*\*\*\*

---

## 10.2.3 Post Processor Log - AutoCAD

Title: IGESIN Journal (v5.1 Nov 05 1992)

=====

File: C:/TMP/Q013.xli

Date: Fri, Jun 03, 1994

Time: 10:04:24

=====

EVALUATION VERSION -- NOT FOR RESALE

Translator S/N: 117-10075750

Translating from IGES file: C:/TMP/Q013.IGS  
to AutoCAD Drawing: C:\Q013.dwg

=====

Options obtained from: default settings

Curves Approximated to Tolerance of 0.01

Surfaces Approximated to Tolerance of 0.01

Text Font/Style mapping:

IGES Text font	Style Name	ACAD Font
0	SYMBOL0	iges0
1	STANDARD	txt
2	LEROY	txt
3	FUTURA	txt
6	COMP80	txt
12	GOTHICE	gothice
13	GOTHICI	gothici
14	ROMANS	romans
17	ROMANT	romant
18	ROMAND	romand
19	OCR	txt
1001	SYMBOL1	iges1001
1002	SYMBOL2	iges1002
1003	SYMBOL3	iges1003
2001	KANJI	bigfont

IGES Linefont/AutoCAD Linetype mapping

IGES Line Font	AutoCAD linetype	Shape file
0	BYLAYER	
1	CONTINUOUS	
2	DASHED	acad.lin
3	PHANTOM	acad.lin
4	CENTER	acad.lin
5	DOT	acad.lin

---

Parse phase

\*\*\* Warning (IAFP\_LARGER\_SGL\_SIG) \*\*\*

C:/TMP/Q013.IGS, line 8: IGES file has greater number of significant digits in single precision numbers than this system.

\*\*\* Warning (IEVM\_LABEL\_NOT\_RJ) \*\*\*

(DE 1, TF 410:0) DE has an invalid label justification.

Action taken: Label has been right justified.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Warning (IEVM\_RADII\_NOT\_EQUAL\_100) \*\*\*

(DE 959, TF 100:0) Entity's radii are not equal. Start point radius: 1.3500000e-002. Terminate point radius: 1.3415424e-002.

Action taken: Start point moved 4.2288002e-005 units from 6.4046360e+000, 3.6207980e+000 to 6.4046360e+000, 3.6208403e+000. Terminate point moved 4.2288002e-005 units from 6.4178350e+000, 3.6366980e+000 to 6.4178766e+000, 3.6367056e+000.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

=====  
Start Section:

Drawing name: t1137. This file was converted by Expert.  
Compliant with CALS class 1, per MIL-D-28000 Amendment 1.

DATE: 24-Mar-94 11:53:20

Global Section:

Parameter Delimiter: ,  
Record Delimiter: ;  
Sending Product ID: Xerox Expert  
File Name: t1137  
System ID: Xerox Expert version 5.0  
Preprocessor Version: 5.0  
Size of Integer: 16  
Sgl. Precision Mag: 38  
Sgl. Precision Sig: 7  
Dbl. Precision Mag: 38  
Dbl. Precision Sig: 7  
Receiving Product ID:  
Model Space Scale: 1.000000  
Unit Flag: 1

Unit String: INCH  
# of Line Weights: 3  
Maximum Line Width: 0.041667  
Creation Date: 03/24/94 11:53:20  
Minimum Resolution: 0.000010  
Maximum Coordinate: 17.000000  
Author: Brian Keefe  
Organization:  
IGES Version Number: 6  
Drafting Standard: 0

Entity Summary:

Type	Form	Description	Count
100	0	Circular Arc	97
102	0	Composite Curve	37
110	0	Line	565
212	0	General Note (Simple)	354
230	0	Section Area (Standard Fill)	37
404	0	Drawing (form 0)	1
406	16	Property (Drawing Size)	1
410	0	View	1
Total			1093

Translation phase

\*\*\* Warning (IGEO\_DISCONTINUOUS) \*\*\*  
( DE: 1787 TF: 102:0 NAME: Composite Curve )  
The IGES entity is discontinuous between segment 1 and 2.  
A linear segment will be added at the discontinuity for approximation.

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Error (IGEO\_SECTAREANOTCLOSED) \*\*\*  
( DE: 1789 TF: 230:0 NAME: Section Area (Standard Fill) )  
The section area is not closed.

\*\*\* Error (ACAD\_APPROXCURVEERROR) \*\*\*  
Internal error 2302 approximating curve at DE: 1795, TYPE: 230, FORM: 0

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Error (IGEO\_SECTAREANOTCLOSED) \*\*\*  
( DE: 1821 TF: 230:0 NAME: Section Area (Standard Fill) )  
The section area is not closed.



<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Error (ACAD\_APPROXCURVEERROR) \*\*\*

Internal error 2302 approximating curve at DE: 1995, TYPE: 230, FORM: 0

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\* Error (IGEO\_SECTAREANOTCLOSED) \*\*\*

( DE: 2113 TF: 230:0 NAME: Section Area (Standard Fill) )  
The section area is not closed.

Drawing Entity (404 Form 0) at DE 2185, with

name = ,  
size = 17.000000, 11.000000,  
units = IN,

was processed in the AutoCAD drawing file: C:\Q013.dwg

\*\*\* Warning (ACAD\_NEW\_VIEW\_VOLUME\_GENERATED) \*\*\*

( DE: 1 TF: 410:0 )

A new view volume has been generated for the view with:

XMIN (-2.024844), XMAX (19.024846),

YMIN (-2.024846), YMAX (13.024846),

ZMIN (-2.024846), ZMAX (2.024846).

IGES Entity Summary

Type	Form	Description	Count	Processed	Errors
100	0	Circular Arc	173	173	0
102	0	Composite Curve	70	70	0
110	0	Line	517	517	0
212	0	General Note (Simple)	354	354	0
230	0	Section Area (Standard Fill)	37	37	0
404	0	Drawing (form 0)	1	1	0
406	16	Property (Drawing Size)	1	1	0
410	0	View	1	1	0
			=====	=====	=====
Totals			1154	1154	0

---

AutoCAD Entity Summary

Entity	Created	Errors
=====	=====	=====
LINE	517	0
CIRCLE	155	0
TEXT	354	0
ARC	18	0
SOLID	4	0
INSERT	54	0
POLYLINE	12	0
BLOCK	75	0

Totals	=====	=====
	1189	0

=====

Error Summary:

The following message was issued 1 time(s)  
IGES file has greater number of significant digits in single precision numbers than this system.

The following message was issued 1055 time(s)  
DE has an invalid label justification.

The following message was issued 14 time(s)  
Entity's radii are not equal. Start point radius: %.7e. Terminate point radius: %.7e.

The following message was issued 24 time(s)  
The section area is not closed.

The following message was issued 79 time(s)  
The IGES entity is discontinuous between segment %d and %d.  
A linear segment will be added at the discontinuity for approximation.

The following message was issued 9 time(s)  
Internal error %d approximating curve at DE: %d, TYPE: %d, FORM: %d

The following message was issued 1 time(s)  
A new view volume has been generated for the view with:  
XMIN (%lf), XMAX (%lf),  
YMIN (%lf), YMAX (%lf),  
ZMIN (%lf), ZMAX (%lf).

AFCTN Test Report  
94-098

AFCTB Test Report  
94-067

---

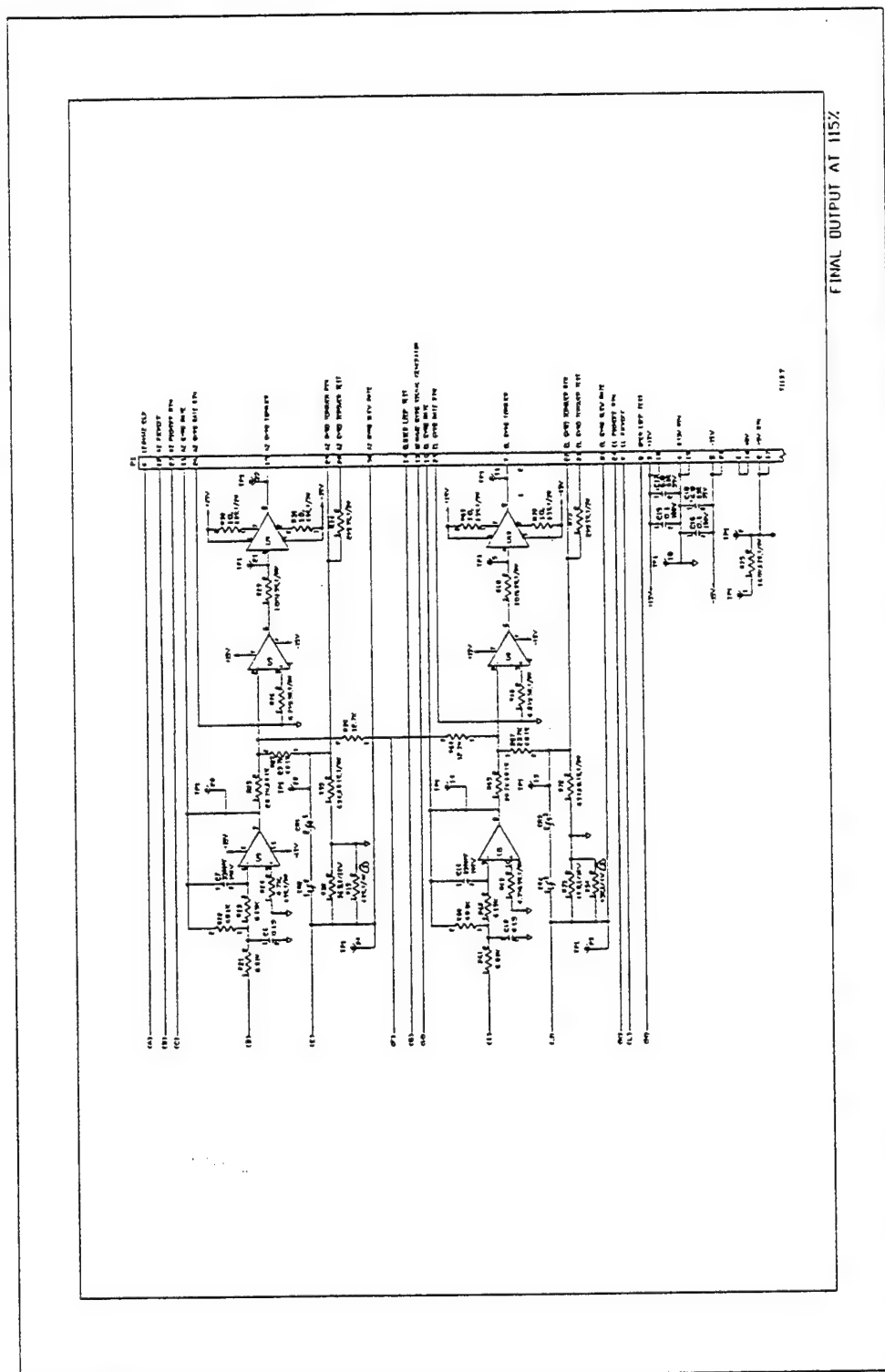
Status: 0  
Warning: 1150  
Error: 33  
Fatal: 0

Elapsed Time:

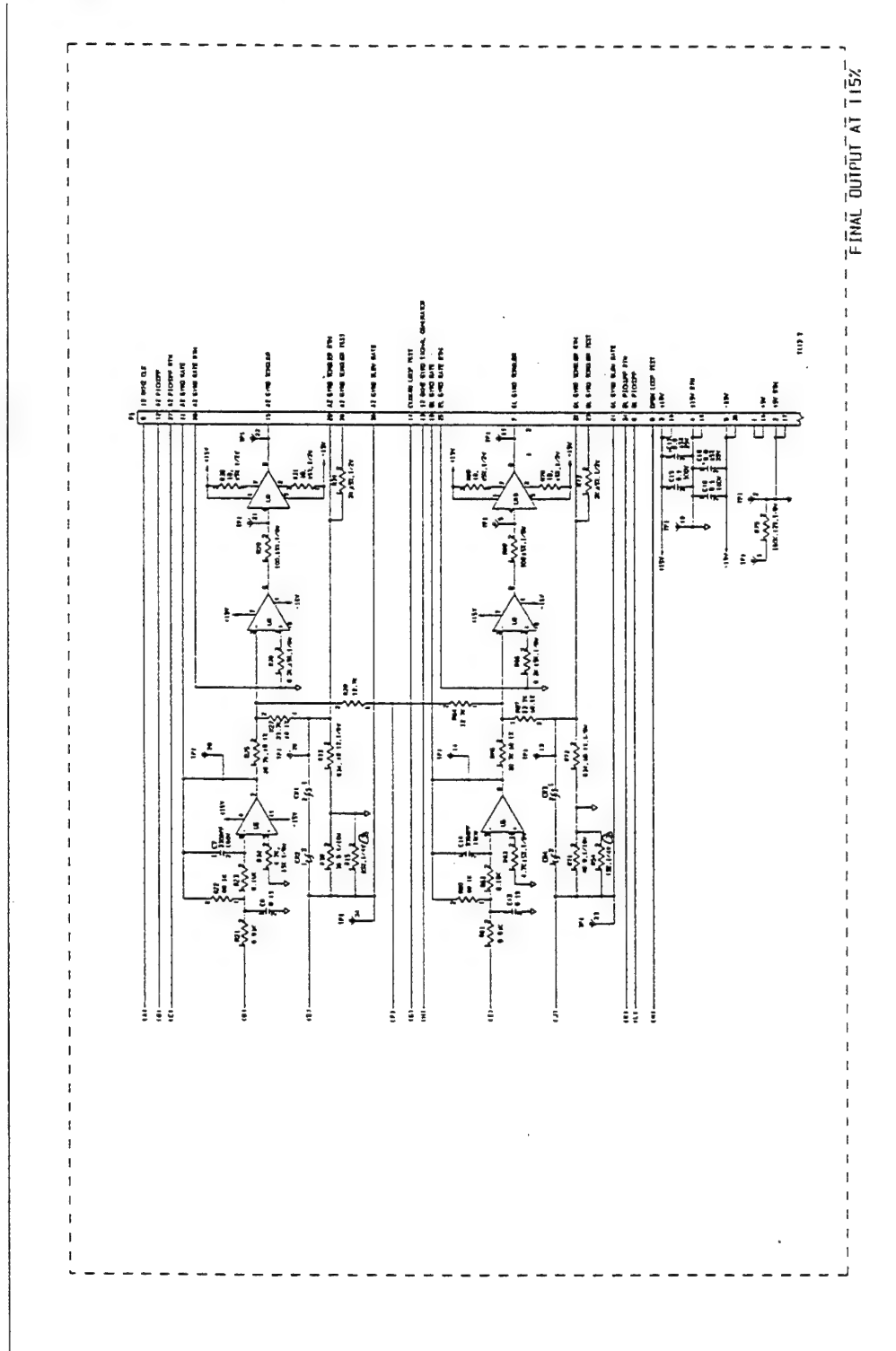
Processor: 00:00:30  
Clock: 00:00:30

=====

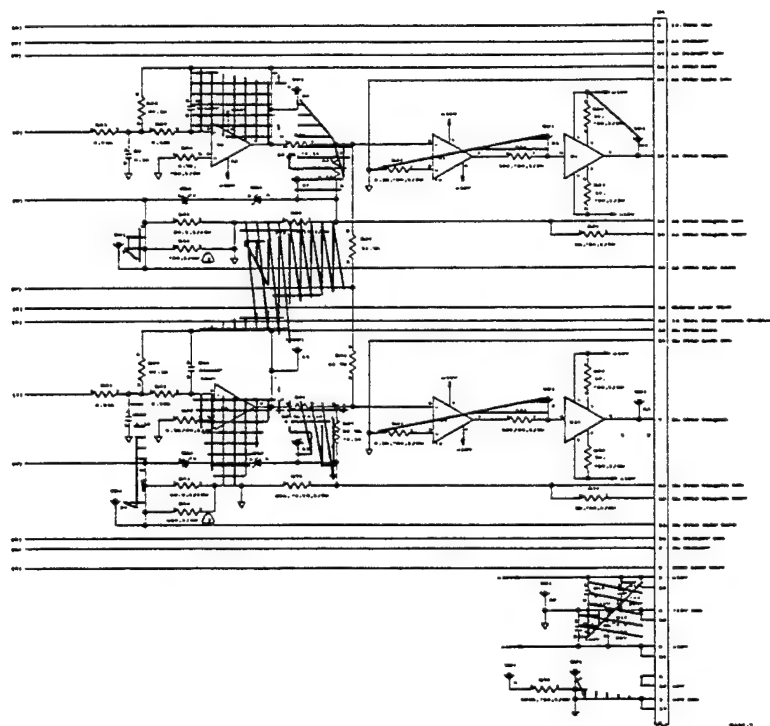
## 10.2.4 Output AutoCAD R12



## 10.2.5 Output Cadkey v6.0

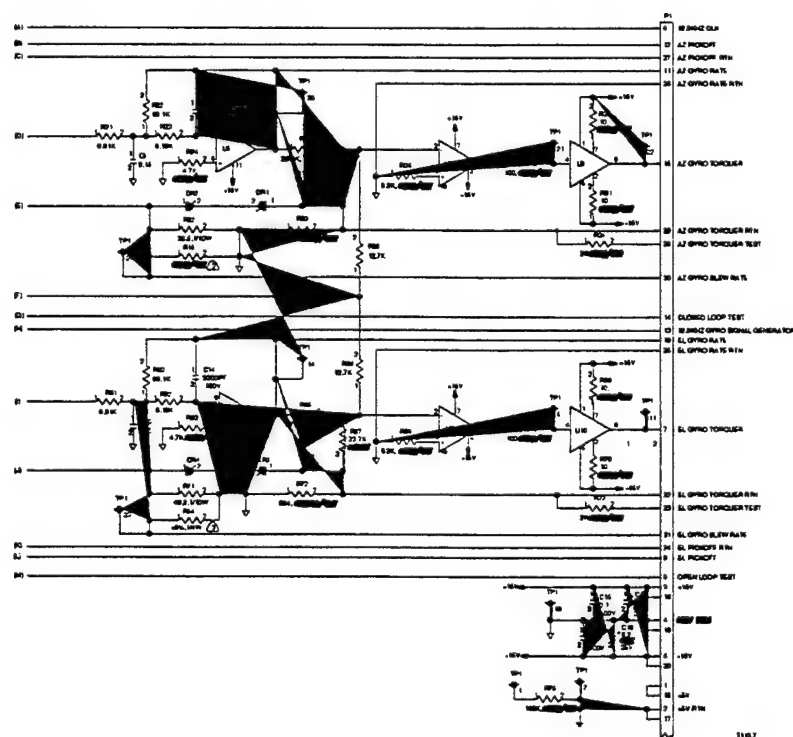


## 10.2.6 Output CADLeaf



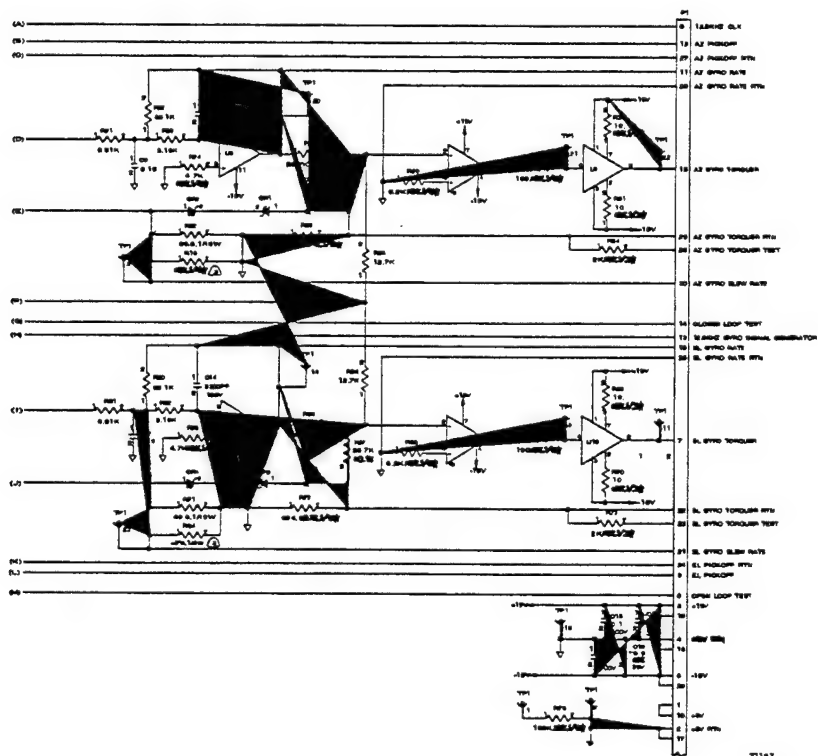
FINAL OUTPUT AT 1154

## 10.2.7 Output CALSView



FINAL OUTPUT AT 115%

## 10.2.8 Output IslandDraw

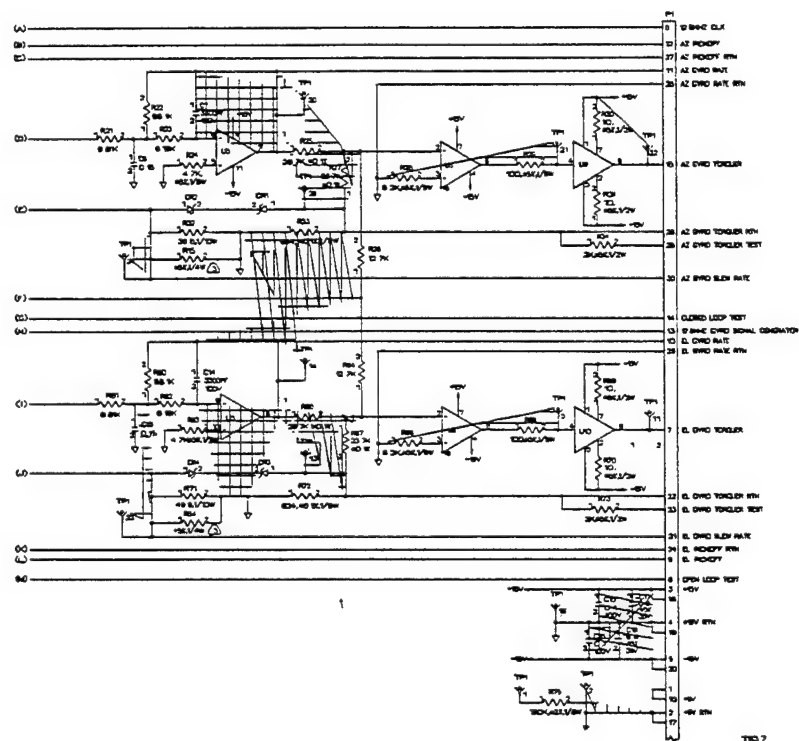


FINAL OUTPUT AT 115%

iges2draw AD  
Q013

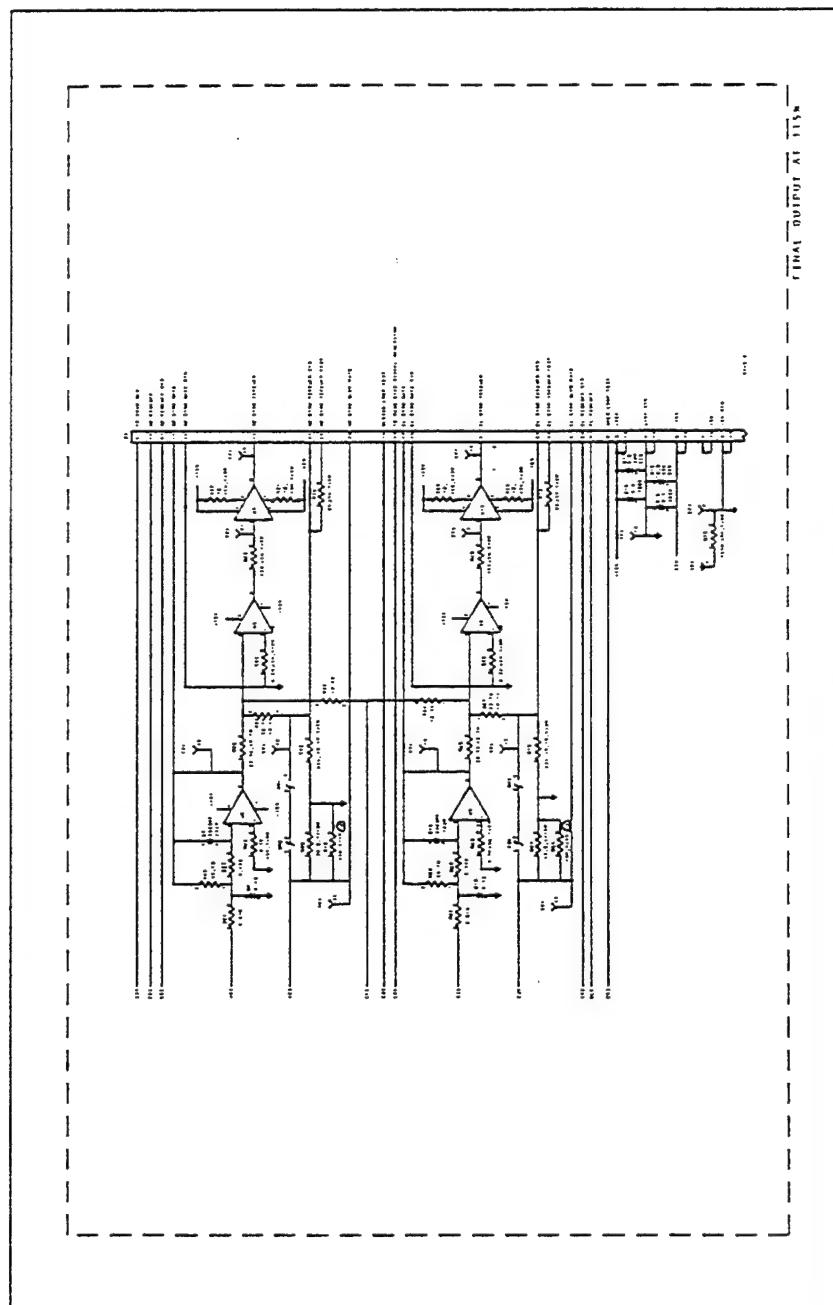


## 10.2.9 Output IGESView

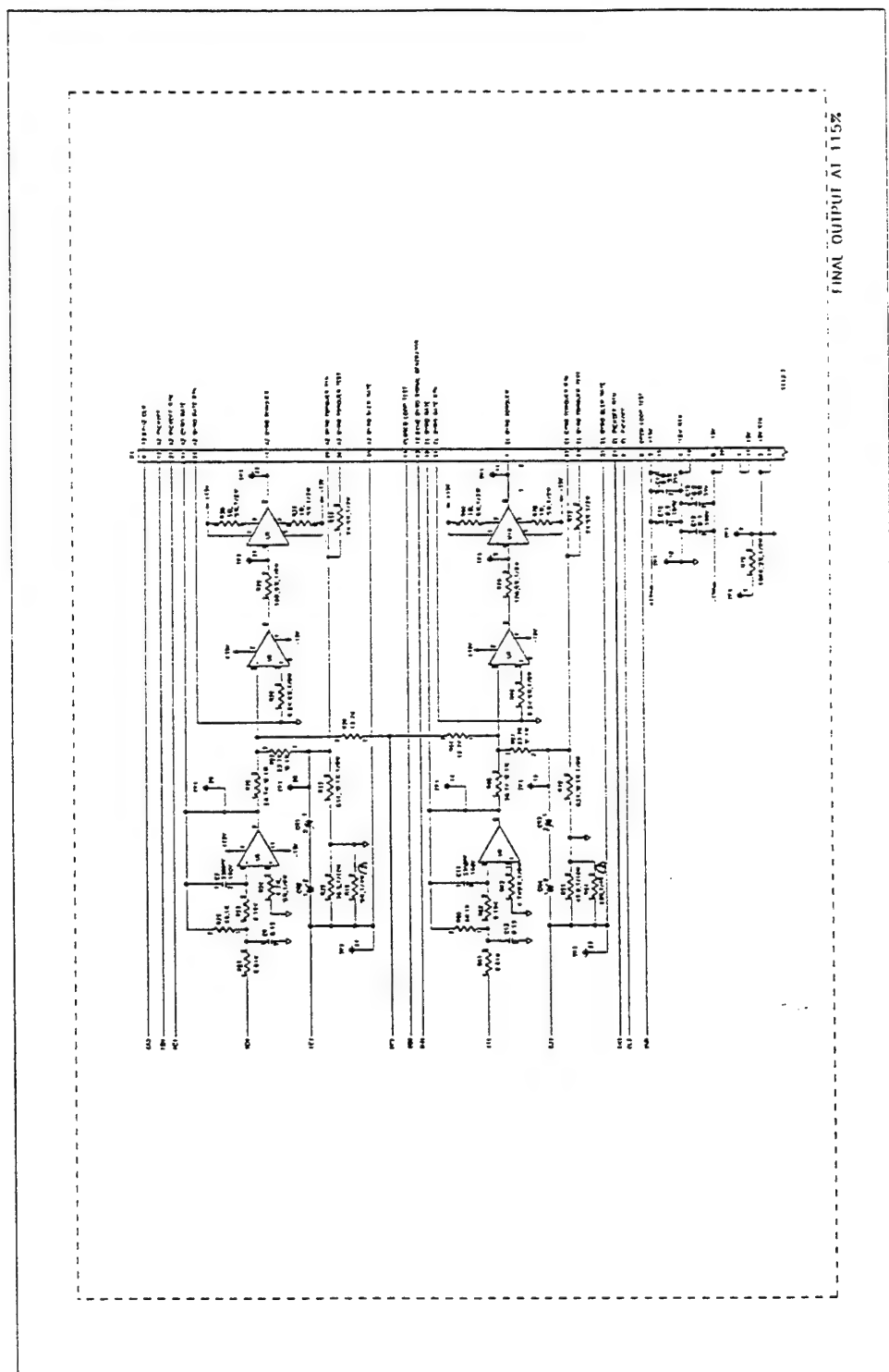


FINAL OUTPUT AT 115%

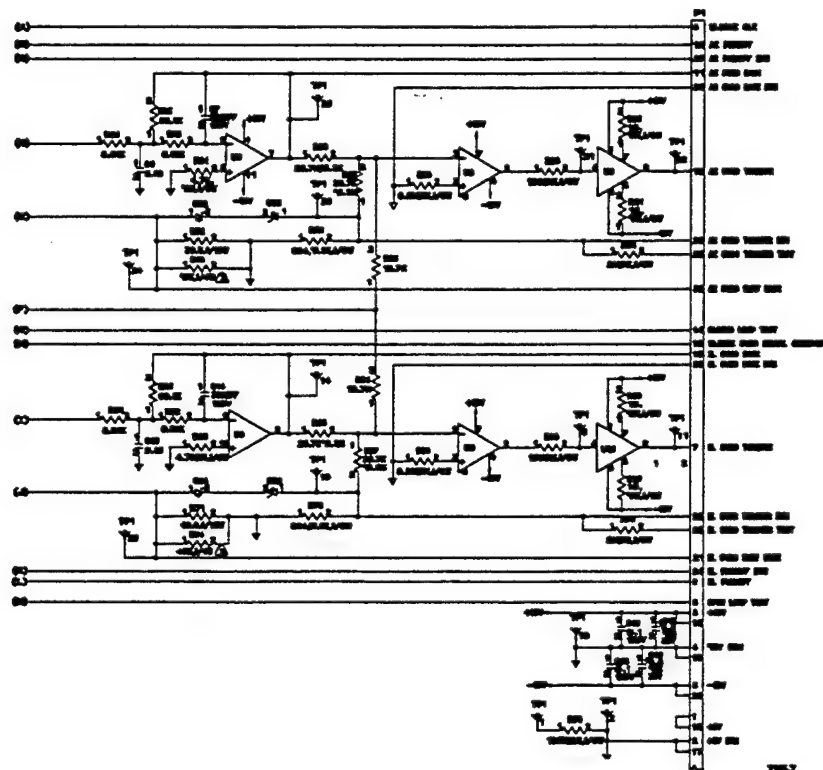
## 10.2.10 Output IGESWorks



## 10.2.11 Output Preview



## 10.2.12 Output X-Change



FINAL OUTPUT AT 115%

## 11. Appendix C - Detailed SGML Analysis

### 11.1 Exoterica XGMLNormalizer Parser

No reported errors or warnings.

### 11.2 Exoterica Validator Parser

```
<!-- **Warning** in "\xgml\9467.dtd", line 122:
  A general entity name has been declared more than once.
  The entity is "M0702".
  <!ENTITY M0702 SYSTEM NDATA fax>
      ^^^^^
-->
<!-- **Warning** in "i:\94067\bspec.dtd" (entity "%BSPEC"), line 342,
  used in "\xgml\9467.dtd", line 161:
  An element with mixed content should permit data characters ("#PCDATA")
  everywhere.
  The element being declared is "WARNING".
  <!ELEMENT warning - - (title?, (%txt; | para | list)+) >
                                          /\
-->
<!-- Capacity points/limits:
  TOTALCAP =63894/200000
  ENTCAP   =12608/200000
  ENTCHCAP =3800/70000
  ELEMCAP  =3840/70000
  GRPCAP   =23072/70000
  EXGRPCAP =896/70000
  EXNMCAP  =3872/70000
  ATTCAP   =5984/200000
  ATTCHCAP =315/70000
  AVGRPCAP =9248/70000
  NOTCAP   =96/70000
  NOTCHCAP =163/70000
  IDCAP    =0/70000
  IDREFCAP =0/70000
  MAPCAP   =0/70000
  LKSETCAP =0/70000
  LKNMCAP  =0/70000
-->
<!-- 2 warnings reported. -->
```

---

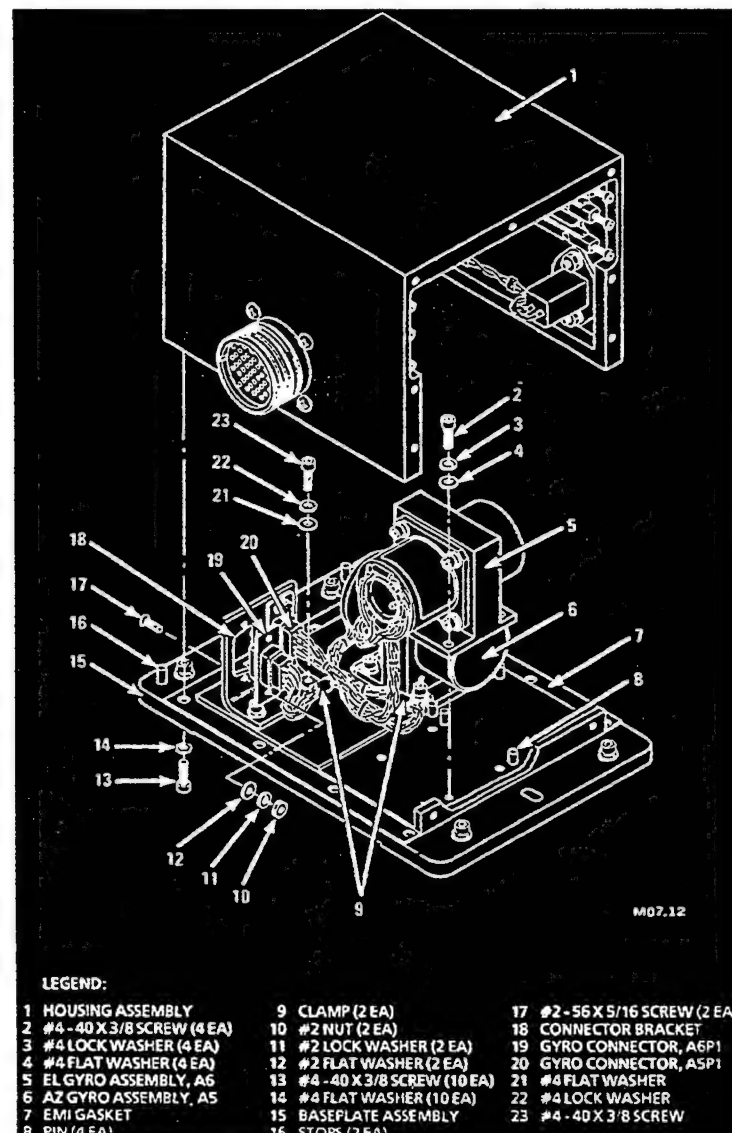
## 11.3 Public Domain sgmls Log

TOTALCAP 63826  
ENTCAP 12608  
ENTCHCAP 3732  
ELEMCA 3840  
GRPCAP 23072  
EXGRPCAP 896  
EXNMCA 3872  
ATTCAP 5984  
ATTCHCAP 315  
AVGRPCAP 9248  
NOTCAP 96  
NOTCHCAP 163  
IDCAP 0  
IDREFCAP 0  
MAPCAP 0  
LKSETCAP 0  
LKNMCA 0

## 12. Appendix D - Detailed Raster Analysis

### 12.1 File D001R018

#### 12.1.1 Output IGESView



## 13. Appendix E - Detailed CGM Analysis

### 13.1 File D001C001

#### 13.1.1 Parser Log MetaCheck

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-93 CGM Technology Software  
Execution Date: 06/03/94 Time: 10:23:03

Metafile Examined : i:\94067\c001.cgm

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

===== Trace Report =====

Tracing not selected.

===== CGM Conformance Violation Report =====

No Errors Detected

===== CALS CGM Profile (MIL-D-28003) Report =====

No profile discrepancies detected.

===== Conformance Summary Report =====

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-93 CGM Technology Software  
Execution Date: 06/03/94 Time: 10:23:05

Name of CGM under test: i:\94067\c001.cgm  
Encoding : Binary

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

BEGIN METAFILE string : >esdcau<  
METAFILE DESCRIPTION : >AUTO-TROL/REL-1.0 MIL-D-28003/BASIC-<  
>1<



Picture 1 starts at octet offset 124: >esdcau<

Conformance Summary : This file conforms to the CGM specification.  
This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

1 Pictures Tested  
97 Elements Tested  
1528 Octets Tested

```
=====
|      No Errors Were Detected      |
=====
```

===== End of Conformance Report =====

### 13.1.2 validcgm Log

Analysis for file c001.cgm using table table

(0, 1) occurred 1 time  
(0, 2) occurred 1 time  
(0, 3) occurred 1 time  
(0, 4) occurred 1 time  
(0, 5) occurred 1 time  
(1, 1) occurred 1 time  
(1, 2) occurred 1 time  
(1, 7) occurred 1 time

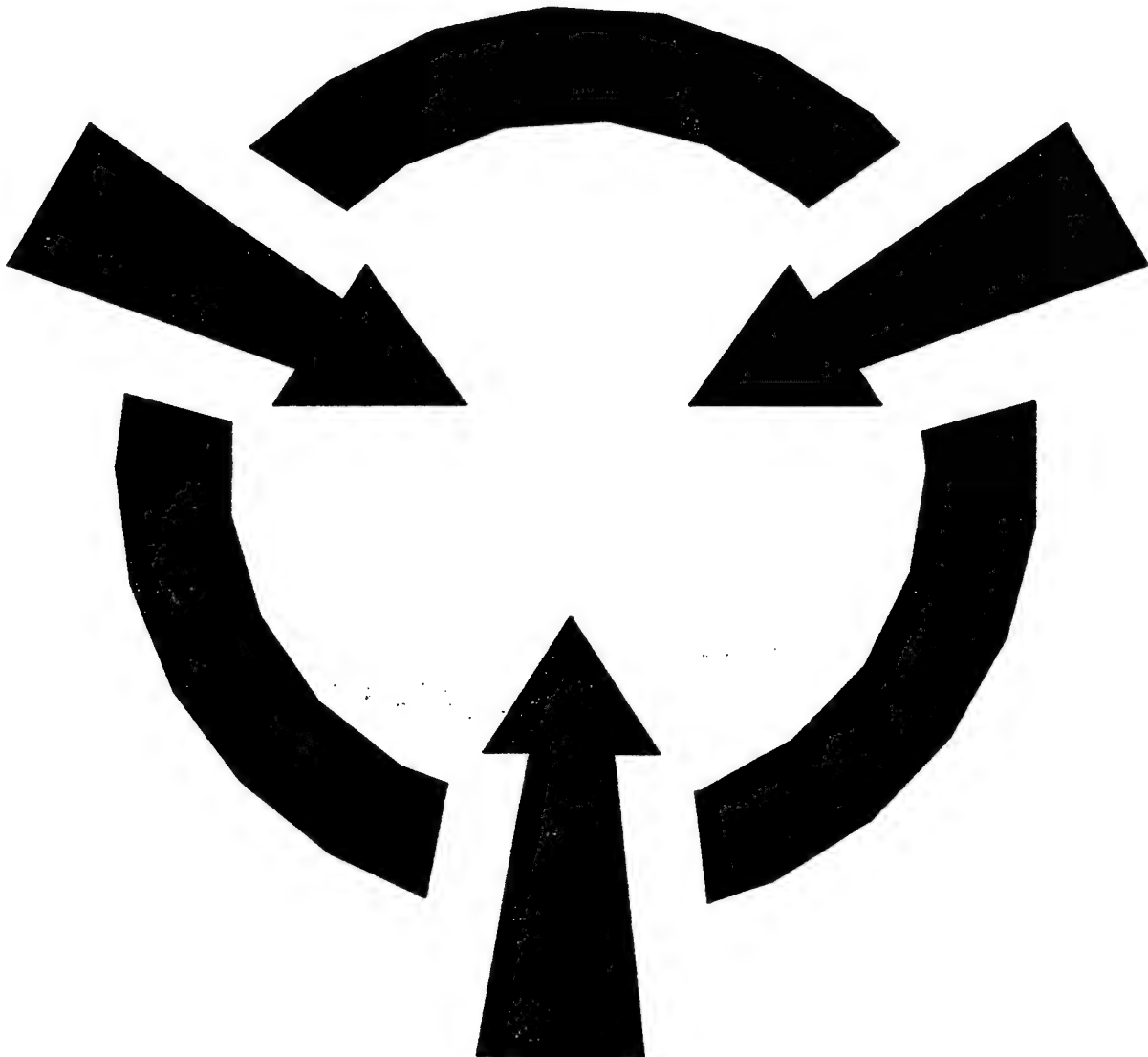
<<<< PART OF LOG FILE REMOVED HERE >>>>

(5, 14) occurred 1 time  
(5, 15) occurred 1 time  
(5, 16) occurred 1 time  
(5, 18) occurred 1 time  
(5, 22) occurred 1 time  
(5, 23) occurred 1 time  
(5, 28) occurred 1 time  
(5, 30) occurred 1 time  
(5, 34) occurred 20 times

### 13.1.3 Output CADLeaf

# CAUTION

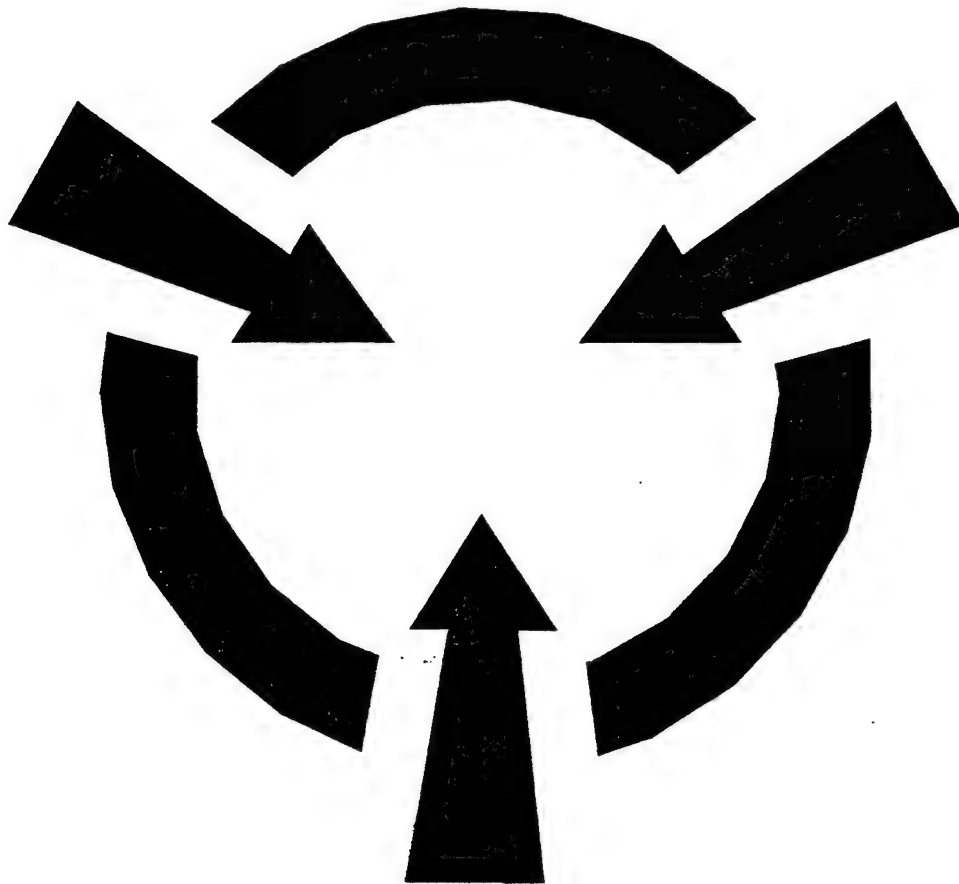
---



### 13.1.4 Output CALSView

CAUTION

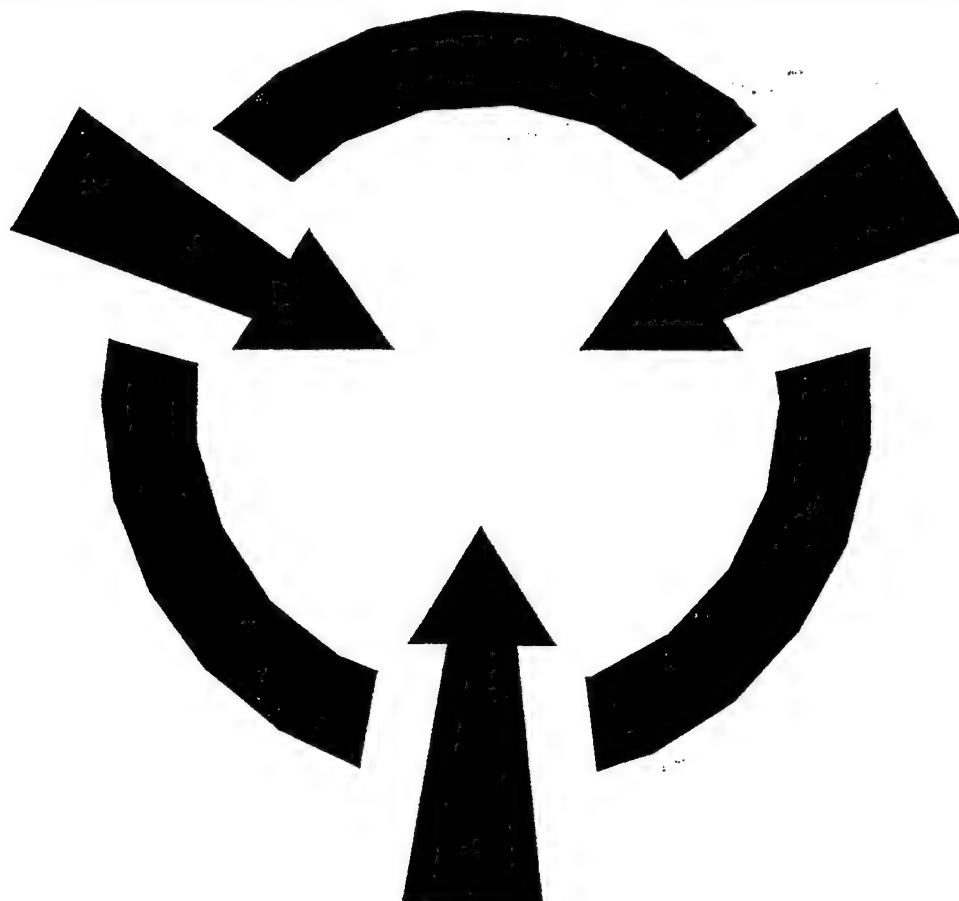
---



### 13.1.5 Output Designer

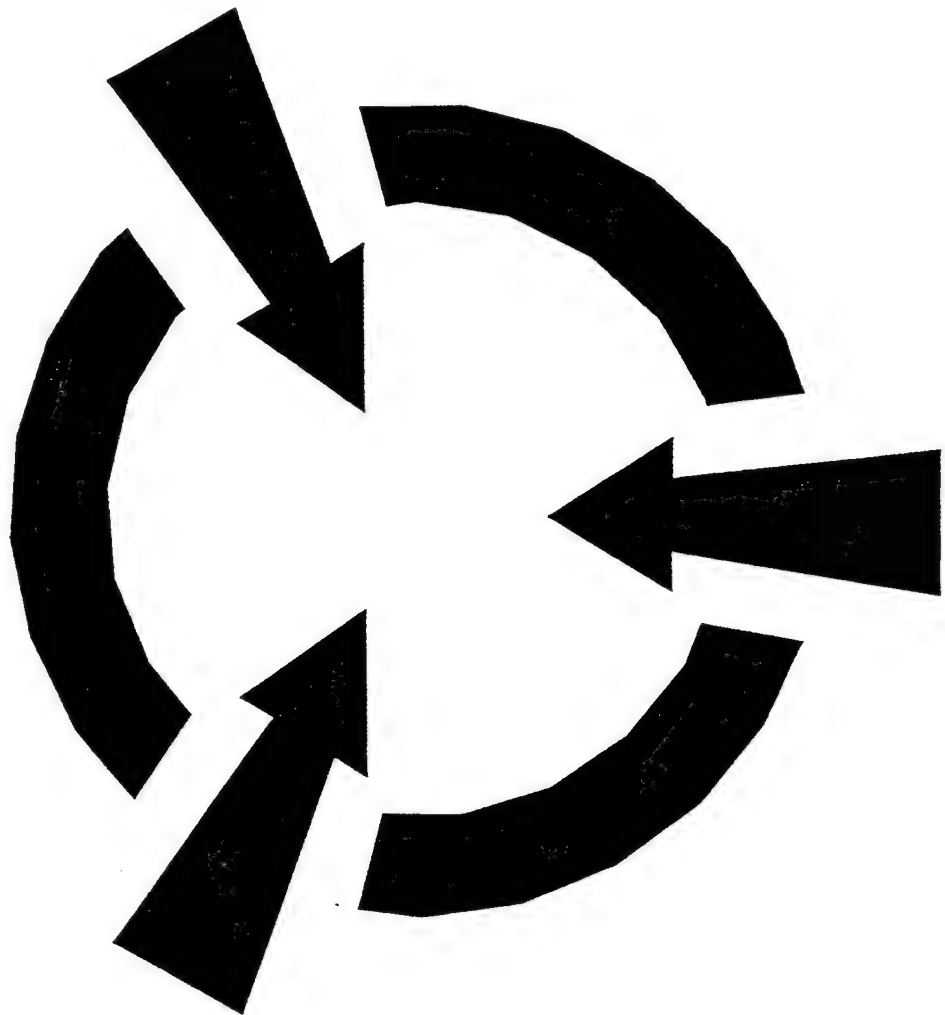
# CAUTION

---



### 13.1.6 Output Freelance

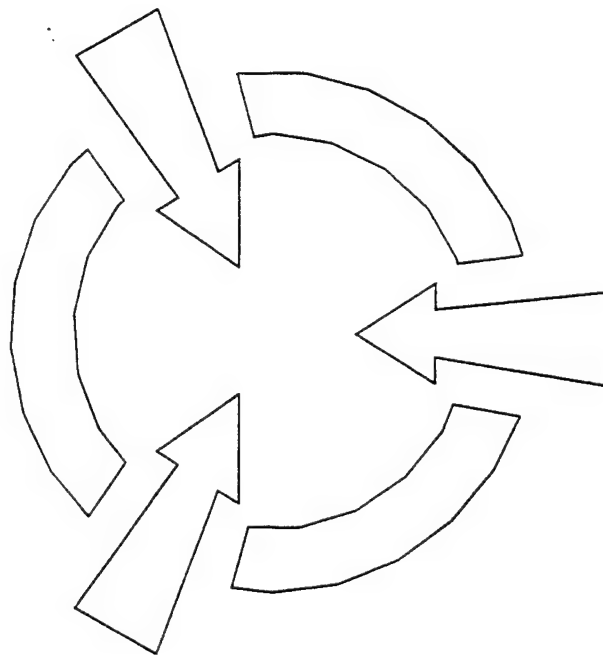
CAUTION



FL  
C001

### 13.1.7 Output Harvard Graphics

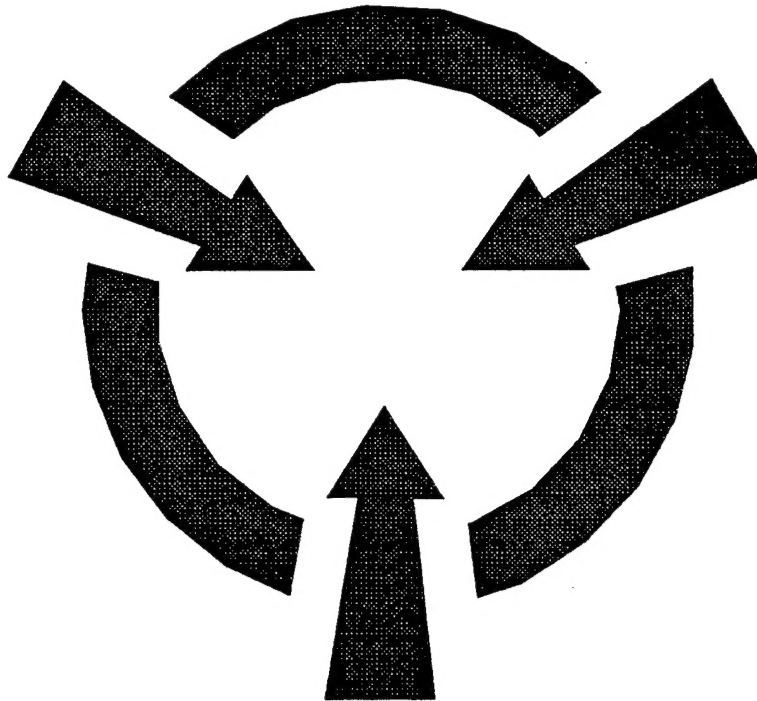
**CAUTION**



HG3.05  
C001

### 13.1.8 Output HiJaak Pro

# CAUTION

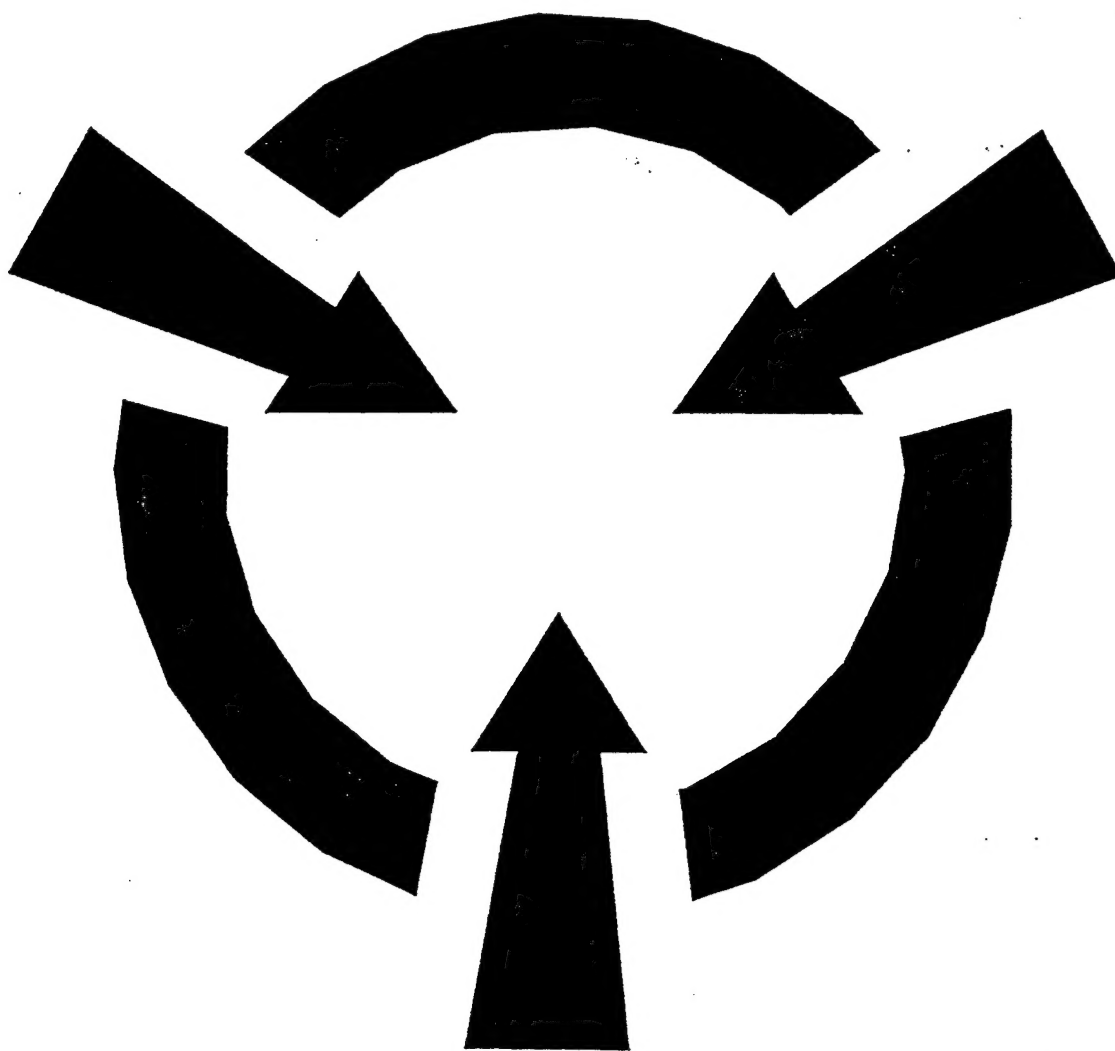


---

13.1.9 Output IslandDraw v4.0

# CAUTION

---

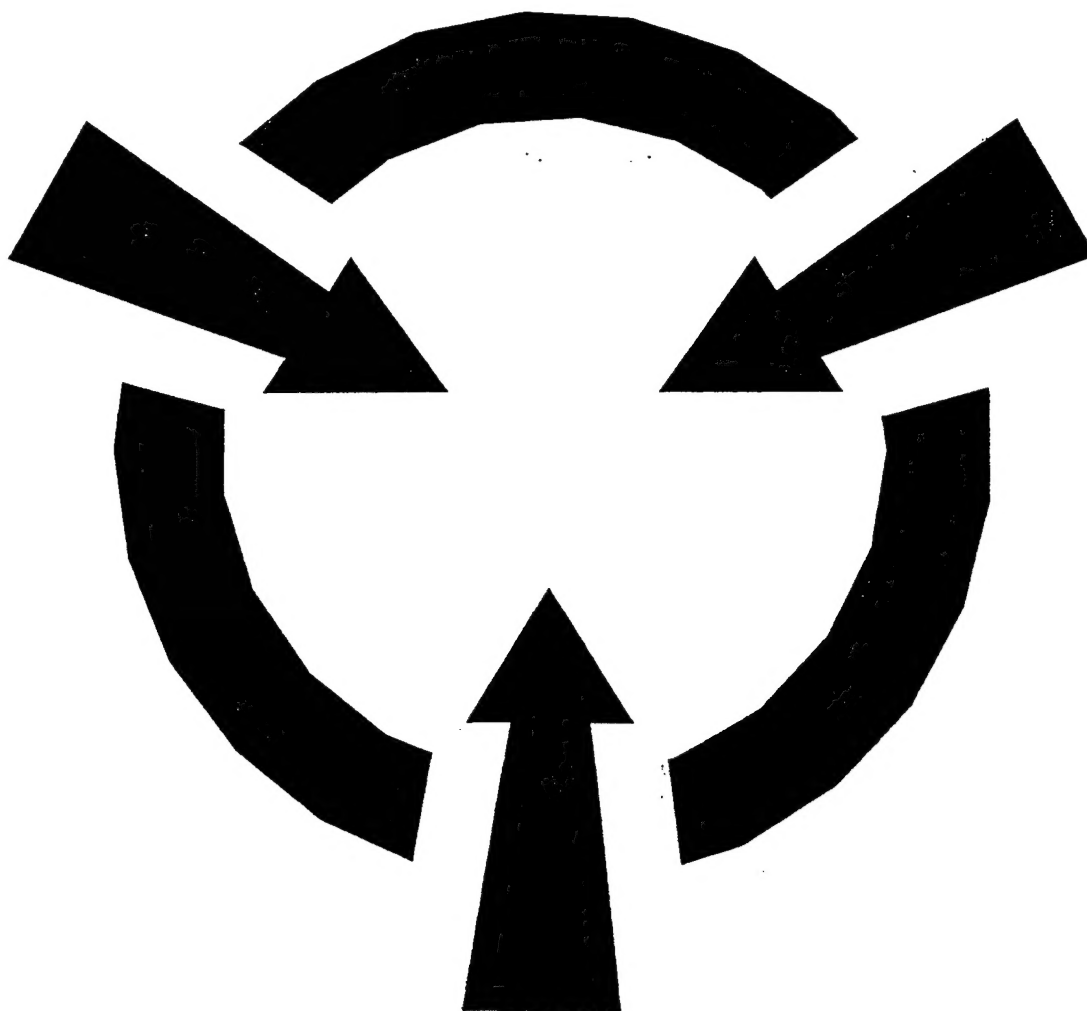




### 13.1.10 Output Ventura Publisher

CAUTION

---



### 13.1.11 Output X-Change

# CAUTION

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